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Development of an attitude scale to analyse the attitude level of dairy farmers regarding dairy waste handling practices

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Abstract

Livestock rearing serves as an important supplementary livelihood for small and marginal farmers in India; however, scientific dairy waste management remains inadequately addressed, particularly in urban and peri-urban areas. This study aimed to develop and standardize an attitude scale to assess dairy farmers' attitudes toward dairy waste management practices and to analyze their attitude levels. The study was conducted during 2025–26 in Rewa and Sidhi districts of Madhya Pradesh using an exploratory, ex post facto research design. A total of 240 dairy farmers (80 urban and 160 peri-urban) were selected through stratified random sampling. An attitude scale was developed following the summated rating method. Initially, 102 statements were generated and reduced to 78 after editing. Based on expert judgment (n=67), 41 statements were retained through relevancy testing. Item analysis using the 't' test further refined the scale to 28 statements (17 positive and 11 negative). The split-half reliability coefficient was 0.75, which, after Spearman–Brown correction, yielded a reliability coefficient of 0.86, indicating high reliability. Content and face validity were ensured through expert evaluation. The findings revealed that 62.5% of respondents had a moderately favourable attitude, 37.08% had a favourable attitude, and only 0.42% had an unfavourable attitude toward dairy waste management. Urban farmers exhibited significantly more favourable attitudes (81.25%) compared to peri-urban farmers (15%). Although awareness regarding environmental protection, soil fertility, and sustainable agriculture was evident, favourable attitudes did not always translate into improved practices due to prevailing constraints. The developed scale proved to be a reliable and valid tool for assessing farmers' attitudes toward dairy waste management and can aid policymakers and extension agencies in designing targeted interventions.

Keywords: Dairy waste management, attitude scale, urban dairy farmers, peri-urban farmers, vermicomposting, biogas production, sustainable agriculture

1. Introduction

Livestock rearing is an important supplementary livelihood for small and marginal farmers in India. However, scientific dairy waste management is often neglected, specifically in urban and peri-urban areas. According to the 19th Livestock Census, India's livestock population exceeds 512 million, producing about 1,095 million tons of dung annually. Much of this resource remains unmanaged, especially in urban and peri-urban settings. Improper disposal of dairy waste leads to air and water pollution, greenhouse gas emissions, and a higher risk of infectious diseases, especially where dairy units are close to human habitation. This study was designed to systematically assess the socio-economic determinants, attitudes, and practices related to dairy waste management among urban and peri-urban dairy farmers. The specific

objectives are as follows:

- To develop and standardize an attitude scale to analyze the attitude level of dairy farmers regarding social dairy waste handling practices.
- To analyze the attitude level of dairy farmers regarding dairy waste handling procedures.

2. Methodology

This study, conducted in 2025-26, aimed to develop a standardized attitude scale to assess dairy farmers' views on dairy waste management. The scale was applied in two districts of Madhya Pradesh. An exploratory, ex post facto research design was used. Rewa and Sidhi districts in the Vindhya region were purposively selected for their high urbanization and dairy farming activity. The sample

comprised 240 dairy farmers (80 urban, 160 peri-urban), selected through stratified random sampling. Farmers were classified as small (5–10 animals) or large (>10 animals). Data were collected using structured schedules, knowledge tests, and attitude scales, and were statistically analyzed.

Respondents were categorized as favourable, moderately favourable, or unfavourable based on cumulative attitude scores. The mean were used to determine these categories.

3. Results and Discussion

A. Development of scale to analyse the attitude of dairy farmers regarding dairy waste management practices.

The method of summated rating scale, as suggested by Likert (1932)^[4] and Edwards (1969)^[3], was followed in the development of the scale, comprising six stages: identification of components, collection of items/statements, relevance test, item analysis, and reliability and validity (Naveen *et al.*, 2018)^[5].

1) Identification of components

Two components related to attitude were identified through literature review and discussions with veterinary scientists: Management and environmental.

2) Collection of items/ statements

The first step in constructing the attitude scale was to collect statements reflecting dairy farmers' attitudes toward dairy waste management. A preliminary list of 102 statements was compiled through literature review and consultations with veterinary scientists across India.

3) Editing of the items

The 102 statements were edited using the 14 criteria

specified by Edwards (1969)^[3] and Thurstone and Chave (1929)^[6]. As a result, 24 statements were eliminated, leaving 78 statements for the study.

4) Relevancy test

Seventy-eight statements were sent to 120 experts in veterinary extension, livestock production and management, and veterinary public health at SVU/Agricultural Universities, Indian Council of Agricultural Research Institutes, and development departments. Experts rated each statement as Most Relevant (MR, 3), Relevant (R, 2), or Not Relevant (NR, 1), and could suggest modifications, additions, or deletions. Sixty-seven experts returned completed questionnaires.

Table 01: presents the 'relevancy percentage' and 'mean relevancy score' for all 78 statements. These metrics were used to screen statements for relevance using the following formulae.

$$\text{Relevancy percentage (RP)} = \frac{\text{MR} \times 3 + \text{R} \times 2 + \text{NR} \times 1}{\text{Maximum possible score}} \times 100$$

$$\text{Mean Relevancy Score (MRS)} = \frac{\text{MR} \times 3 + \text{R} \times 2 + \text{NR} \times 1}{\text{No. of judges responded}} \times 100$$

Responded

Statements with a relevancy percentage of 75 percent or higher and a mean score of 2.25 or above were selected. Forty-one statements were retained after the relevancy test and modified based on judges' comments where applicable.

Table 1: Mean relevancy score and relevancy percentage of the statements based on the responses given by judges

S. No.	Items	RP	MRS	Remark
Management and Environmental Dimension				
1.	I think waste management should be an essential component of dairy farming. (+)	94.53	2.84	Selected
2.	I believe that I do not have the necessary knowledge and skills to manage the dairy waste of my dairy farm. (-)	70.65	2.12	Rejected
3.	It is not necessary for me to adopt any waste management system as very little waste is generated from my farm. (-)	63.18	1.90	Rejected
4.	Use of treated dairy waste is good for soil health. (+)	91.04	2.73	Selected
5.	I think that the wastewater channels from my dairy farm do not cause water pollution. (-)	74.13	2.22	Rejected
6.	In my opinion, a lot of time is required for proper disposal of dairy waste. (-)	69.65	2.09	Rejected
7.	I think dairy waste does not cause any environmental problems in the rural areas. (-)	73.63	2.21	Rejected
8.	I feel availability of labour is one of the important problems for me to dispose of the animal waste in a proper manner. (-)	77.61	2.33	Selected
9.	I believe that the production of dung cake is the best way to dispose of dairy waste. (-)	70.65	2.12	Rejected
10.	Flies and mosquitoes may spread diseases, if the dairy waste remains unattended in the shed. (+)	91.04	2.73	Selected
11.	Since native cattle produce less dung and urine, they do not require proper disposal. (-)	57.71	1.73	Rejected
12.	Milk gets contaminated due to the unattended waste in the cattle shed. (+)	88.06	2.64	Selected
13.	The dust generated from dairy farms does not cause respiratory problem in humans. (-)	65.17	1.96	Rejected
14.	Bad odour emitted from dairy farm causes environmental pollution. (+)	83.08	2.49	Selected
15.	Improper management of dairy waste may result in poor air and water of the surrounding environment. (+)	84.58	2.54	Selected
16.	Uneducated people do not bother about Improper disposal of animal waste is one of the major causes of global warming. (-)	76.62	2.30	Selected
17.	In my opinion, scientific waste management is suitable for large dairy farm. (-)	89.05	2.67	Selected
18.	In my opinion, small dairy farmers should not be worried about proper disposal of animal waste. (-)	59.70	1.79	Rejected
19.	Dumping of animal waste nearer to the shed creates unhygienic situations for the entire village. (+)	86.07	2.58	Selected
20.	I focus on dairy waste disposal nearer to my dairy shed rather than environmental pollution. (-)	63.68	1.91	Rejected
21.	Dairy animal waste is a valuable input for agriculture production. (+)	93.03	2.79	Rejected
22.	Integrated farming is a good choice for proper use of dairy animal waste. (+)	87.06	2.61	Selected
23.	The waste generated in dairy farming is environmentally friendly byproducts of a farm. (-)	72.64	2.18	Rejected
24.	I prefer to keep native cattle since they produce less waste. (-)	51.74	1.55	Rejected

25.	I feel that all the mostly dairy owners of the village are uneducated so they cant undersatnd the harmful effects of animal waste. (-)	87.06	2.61	Selected
26.	Only socio-economically weaker sections of dairy owners do not dispose of the dairy waste properly. (-)	58.21	1.75	Rejected
27.	I feel most dairy farmers do not know how to dispose of the dairy waste. (-)	72.14	2.16	Rejected
28.	I feel, if the community plays an active role, in proper disposal of dairy waste in a village. (+)	84.08	2.52	Selected
29.	I feel, The government do not promote scientific management of waste. (-)	84.08	2.52	Selected
30.	The government should do more to promote scientific management of waste. (+)	87.06	2.61	Selected
31.	In order to have esteem in the community, I dispose of the dairy waste properly. (+)	73.13	2.19	Rejected
32.	Institutes are not promoting people to adopt scientific methods of dairy waste management. (-)	86.57	2.60	Selected
Economic Dimension				
33.	I feel scientific waste management is not financially beneficial for me. (-)	65.17	1.96	Rejected
34.	Dairy animal waste is not having much economic value. (-)	59.20	1.78	Rejected
35.	The dung and urine of dairy animal are having medicinal value. (+)	67.16	2.01	Rejected
36.	Dairy animal waste contains essential elements which are useful for soil health. (+)	86.57	2.60	Selected
37.	Cow urine can not be used before the treatment for fly repellant to protect the crops. (-)	78.11	2.34	Selected
38.	Use of dairy manure reduces the cost of fertilizer. (+)	85.57	2.57	Selected
39.	Dairy waste may be used profitably for organic farming although people are unaware of that (-)	89.55	2.69	Selected
40.	Shifting to organic farming has increased the demand of dung and urine for crop cultivation. (+)	85.07	2.55	Selected
41.	I find organic farming reduces yield and is not practical for small scale farming. (-)	67.66	2.03	Rejected
42.	Awareness among the dairy farmers related to livestock waste management can reduce the burning of dung cake. (+)	80.10	2.40	Selected
43.	I believe vermicompost is worth doing with dairy waste although it is laborious. (-)	84.58	2.54	Selected
44.	Preparation of vermicompost from dairy waste is very complex. (-)	61.19	1.84	Rejected
45.	In my opinion, the production of farmyard manures is the best economical method of livestock waste management. (+)	85.57	2.57	Selected
46.	Vermicompost is an effective way to recycle dairy waste. (+)	85.07	2.55	Selected
47.	Vermicomposting is an important component of dairy waste management. But it degrades the image in front of others (-)	80.60	2.42	Selected
48.	I think chemical fertilizers are superior to vermicompost. (-)	54.23	1.63	Rejected
49.	In my opinion, the application of vermicompost does not reduce the use of chemical fertilizers. (-)	53.23	1.60	Rejected
50.	Application of vermicompost decreases the beneficial soil micro-organisms. (-)	52.74	1.58	Rejected
51.	Vermicompost is a rich source of plant nutrients. (+)	81.09	2.43	Selected
52.	I feel vermicompost preparation requires complex skills. (-)	58.21	1.75	Rejected
53.	Vermicompost is only made for commercial purpose. (-)	77.11	2.31	Selected
54.	Use of vermicompost should be encouraged for sustainable agriculture production. (+)	87.56	2.63	Selected
55.	Use of vermicompost in agricultural fields increases environmental pollution. (-)	55.22	1.66	Rejected
56.	Use of vermicompost does not give quick results. (-)	60.20	1.81	Rejected
57.	I do not prefer biofertilizers over chemical fertilizers for more and quick agriculture production. (-)	88.06	2.64	Selected
58.	In my opinion, the best use of cow dung is to use it as fuel for cooking. (-)	63.18	1.90	Rejected
59.	Dairy waste is better managed by rich farmers for economic benefit. (-)	67.16	2.01	Rejected
60.	Earthworms are used in vermicomposting which increases nutritional value, that is why it is better than traditional composting. (+)	80.60	2.42	Selected
61.	I prefer to use my dairy waste for making dung cake instead of vermicompost. (-)	80.60	2.42	Selected
62.	I feel that dairy waste may be used for bio-gas production as it is complex production process, and requires extra labour. (-)	84.58	2.54	Selected
63.	Heavy investment is required for biogas plant. (-)	67.16	2.01	Rejected
64.	I feel high initial investment in biogas production discourages small dairy farmers. (-)	75.62	2.27	Selected
65.	In my opinion, biogas slurry is an inferior fertilizer. (-)	56.72	1.70	Rejected
66.	Biogas production from dairy waste increases environmental pollution. (-)	56.72	1.70	Rejected
67.	I think possession of a biogas plant increases the social status in the community. (+)	69.65	2.09	Rejected
68.	In my opinion the Government should promote biogas production by giving incentives to dairy owners. (+)	95.02	2.85	Selected
69.	I am interested in panchagavya production, but I don't know how to produce it. (-)	75.12	2.25	Selected
70.	I feel the dairy farmers should be trained on panchagavya production. (+)	79.10	2.37	Selected
71.	Panchagavya is good for soil fertility and deterrent against certain pests. (+)	80.60	2.42	Selected
72.	I think production of panchagavya requires complex skills. (-)	64.18	1.93	Rejected
73.	There is low demand for panchagavya products in the market. (-)	64.68	1.94	Rejected
74.	There should be more government-initiated awareness programmes about the value addition of dairy waste. (+)	84.58	2.54	Selected
75.	The market demands for value added dairy waste products are relatively limited at present. (-)	73.63	2.21	Rejected
76.	I see limited scope in value addition of dairy waste. (-)	64.18	1.93	Rejected
77.	Those who do the value addition of dairy waste products must be rewarded. (+)	85.07	2.55	Selected
78.	I feel dairy farmers lack proper market linkages to sell the value added dairy waste products. (+)	86.07	2.58	Selected

5) Item analysis

Forty-one statements underwent item analysis to determine their ability to distinguish between respondents with favourable and unfavourable attitudes toward dairy waste management. A sample of 40 dairy farmers from Mauganj district, outside the main sampling area, participated in the

study. The statements were administered through direct interviews, and respondents indicated their agreement on a five-point scale: strongly agree, agree, undecided, disagree, and strongly disagree. Positive statements were scored 5 to 1, and negative statements 1 to 5. Respondents were ranked by total score, with the top 25 percent forming the high

group and the bottom 25 percent the low group. The 10 highest and 10 lowest scoring respondents were used as criterion groups for item evaluation. The 't' value (critical ratio) was calculated for each statement using the formula provided by Edwards (1969) [3].

$$t = \frac{X_H - X_L}{\sqrt{S^2_H/n_H + S^2_L/n_L}}$$

Where,

X_H = the mean score on a given statement for the high group

X_L = the mean score on the same statement for the low

group

S^2_H = the variance of the distribution of responses of high group to the statement

S^2_L = the variance of the distribution of responses of low group to the statement

n_H = number of subjects in the high group

n_L = number of subjects in the low group

Table 02 shows the computed 't' values for all 41 items. Twenty-eight statements with a 't' value of 1.75 or higher were selected for the final attitude scale, including 17 positive and 11 negative statements.

Table 2: Forty-One Statements for the item analysis for the respondents in the non-sample area and calculated t-value

S. No.	Item No.	Statements	t-value	Remark
1.	1	I think waste management should be an essential component of dairy farming. (+)	2.68	Selected
2.	4	Use of treated dairy waste is good for soil health. (+)	1.81	Selected
3.	8	I feel availability of labour is one of the important problems for me to dispose of the animal waste in a proper manner. (-)	0.67	Rejected
4.	10	Flies and mosquitoes may spread diseases, if the dairy waste remains unattended in the shed. (+)	1.84	Selected
5.	12	Milk gets contaminated due to the unattended waste in the cattle shed. (+)	0.92	Rejected
6.	14	Bad odour emitted from dairy farm causes environmental pollution. (+)	1.94	Selected
7.	15	Improper management of dairy waste may result in poor air and water of the surrounding environment. (+)	0.00	Rejected
8.	16	Uneducated people do not bother about Improper disposal of animal waste is one of the major causes of global warming. (-)	0.68	Rejected
9.	17	In my opinion, scientific waste management is suitable for large dairy farm. (-)	1.75	Selected
10.	19	Dumping of animal waste nearer to the shed creates unhygienic situations for the entire village. (+)	2.37	Selected
11.	22	Integrated farming is a good choice for proper use of dairy animal waste. (+)	4.07	Selected
12.	25	I feel that all the mostly dairy owners of the village are uneducated so they cant undersatnd the harmful effects of animal waste. (-)	0.29	Rejected
13.	28	I feel, if the community plays an active role, in proper disposal of dairy waste in a village. (+)	3.56	Selected
14.	29	I feel, The government do not promote scientific management of waste. (-)	3.11	Selected
15.	30	The government should do more to promote scientific management of waste. (+)	2.14	Selected
16.	32	Institutes are not promoting people to adopt scientific methods of dairy waste management. (-)	2.60	Selected
17.	36	Dairy animal waste contains essential elements which are useful for soil health. (+)	0.28	Rejected
18.	37	Cow urine can not be used before the treatment for fly repellent to protect the crops. (-)	0.52	Rejected
19.	38	Use of dairy manure reduces the cost of fertilizer. (+)	2.13	Selected
20.	39	Dairy waste may be used profitably for organic farming although people are unaware of that (-)	2.81	Selected
21.	40	Shifting to organic farming has increased the demand of dung and urine for crop cultivation. (+)	0.19	Rejected
22.	42	Awareness among the dairy farmers related to livestock waste management can reduce the burning of dung cake. (+)	1.79	Selected
23.	43	I believe vermicompost is worth doing with dairy waste although it is laborious. (-)	2.04	Selected
24.	45	In my opinion, the production of farmyard manures is the best economical method of livestock waste management. (+)	0.57	Rejected
25.	46	Vermicompost is an effective way to recycle dairy waste. (+)	3.43	Selected
26.	47	Vermicomposting is an important component of dairy waste management. But it degrades the image in front of others (-)	3.95	Selected
27.	51	Vermicompost is a rich source of plant nutrients. (+)	2.57	Selected
28.	53	Vermicompost is only made for commercial purpose. (-)	0.90	Rejected
29.	54	Use of vermicompost should be encouraged for sustainable agriculture production. (+)	1.75	Selected
30.	57	I do not prefer biofertilizers over chemical fertilizers for more and quick agriculture production. (-)	2.37	Selected
31.	60	Earthworms are used in vermicomposting which increases nutritional value, that is why it is better than traditional composting. (+)	6.20	Selected
32.	61	I prefer to use my dairy waste for making dung cake instead of vermicompost. (-)	2.59	Selected
33.	62	I feel that dairy waste may be used for bio-gas production as it is complex production process, and requires extra labour. (-)	0.36	Rejected
34.	64	I feel high initial investment in biogas production discourages small dairy farmers. (-)	0.41	Rejected
35.	68	In my opinion the Government should promote biogas production by giving incentives to dairy owners. (+)	1.87	Selected
36.	69	I am interested in panchagavya production, but I don't know how to produce it. (-)	1.92	Selected
37.	70	I feel the dairy farmers should be trained on panchagavya production. (+)	2.60	Selected
38.	71	Panchagavya is good for soil fertility and deterrent against certain pests. (+)	2.83	Selected
39.	74	There should be more government-initiated awareness programmes about the value addition of dairy waste. (+)	0.39	Rejected
40.	77	Those who do the value addition of dairy waste products must be rewarded. (+)	1.75	Selected
41.	78	I feel dairy farmers lack proper market linkages to sell the value added dairy waste products. (+)	2.03	Selected

6) Reliability

Reliability measures the consistency of a scale. The split-half method was used to test the reliability of the attitude scale. The correlation coefficient was 0.75, which was adjusted using the Spearman-Brown formula (Spearman; 1910 and Brown; 1910) ^[1, 2] to yield a reliability coefficient ('rtt') of 0.86, significant at the 1% level. This indicates the scale is highly reliable.

a) Half test reliability formula

$$r = \frac{N(\Sigma XY) - (\Sigma X)(\Sigma Y)}{\sqrt{(N \Sigma X^2 - (\Sigma X)^2)(N \Sigma Y^2 - (\Sigma Y)^2)}}$$

Where,

ΣX = Sum of the scores of the odd number items

ΣY = Sum of the scores of the even number items

ΣX^2 = Sum of the squares of the odd number items

ΣY^2 = Sum of the squares of the even number items

b) Whole test reliability formula

$$rtt = \frac{2r}{1+r}$$

Where, r = Half test reliability

7) Validity

Content validity refers to how well a measuring instrument represents the subject it intends to assess. The statements covered a comprehensive range of dairy farmers' attitudes toward dairy waste management, as reviewed and validated by experts. Therefore, content and face validity were considered satisfactory.

8) Administration of attitude scale and method of scoring

The final scale consists of 28 statements (Table 03) for determining the attitude of dairy farmers. The response was collected on a five-point continuum, namely, strongly agree, agree, undecided, disagree and strongly disagree with assigned score of 5,4,3,2 and 1, respectively. The attitude score of a respondent was calculated by adding up the scores obtained by him/her on all items/statements. The attitude score of this scale ranges from a minimum of 28 to a maximum of 140. Based on the mean (85.51), the respondents were categorized into three perception categories, viz., Favourable, Moderately Favourable and Unfavourable. A higher score on this scale indicates that the respondent has better attitude regarding dairy waste management practices.

Table 3: Twenty Eight selected Statements with 17 positive and 11 negative statements

S. No.	Item No.	Statements
1.	1	I think waste management should be an essential component of dairy farming. (+)
2.	4	Use of treated dairy waste is good for soil health. (+)
3.	10	Flies and mosquitoes may spread diseases, if the dairy waste remains unattended in the shed. (+)
4.	14	Bad odour emitted from dairy farm causes environmental pollution. (+)
5.	17	In my opinion, scientific waste management is suitable for large dairy farm. (-)
6.	19	Dumping of animal waste nearer to the shed creates unhygienic situations for the entire village. (+)
7.	22	Integrated farming is a bad choice for proper use of dairy animal waste. (-)
8.	28	I feel, if the community plays an active role, in proper disposal of dairy waste in a village. (+)
9.	29	I feel, The government do not promote scientific management of waste. (-)
10.	30	The government should do more to promote scientific management of waste. (+)
11.	32	Institutes are not promoting people to adopt scientific methods of dairy waste management. (-)
12.	38	Use of dairy manure reduces the cost of fertilizer. (+)
13.	39	Dairy waste may be used profitably for organic farming although people are unaware of that (-)
14.	42	Awareness among the dairy farmers related to livestock waste management can reduce the burning of dung cake. (+)
15.	43	I believe vermicompost is worth doing with dairy waste although it is laborious. (-)
16.	46	Vermicompost is an effective way to recycle dairy waste. (+)
17.	47	Vermicomposting is an important component of dairy waste management. But it degrades the image in front of others (-)
18.	51	Vermicompost is a rich source of plant nutrients. (+)
19.	54	Use of vermicompost should be encouraged for sustainable agriculture production. (+)
20.	57	I do not prefer biofertilizers over chemical fertilizers for more and quick agriculture production. (-)
21.	60	Earthworms are used in vermicomposting which increases nutritional value, that is why it is better than traditional composting. (+)
22.	61	I prefer to use my dairy waste for making dung cake instead of vermicompost. (-)
23.	68	In my opinion the Government should promote biogas production by giving incentives to dairy owners. (+)
24.	69	I am interested in panchagavya production, but I don't know how to produce it. (-)
25.	70	I feel the dairy farmers should be trained on panchagavya production. (+)
26.	71	Panchagavya is good for soil fertility and deterrent against certain pests. (+)
27.	77	Those who do the value addition of dairy waste products must be rewarded. (+)
28.	78	I feel dairy farmers does not lack proper market linkages to sell the value-added dairy waste products. (-)

A. Attitude level of dairy farmers regarding dairy waste management practices

The attitude scale was administered to 240 dairy farmers (80 urban and 160 peri-urban) in Rewa and Sidhi districts

during 2025-26. Results showed that 62.5 percent of farmers had moderately favourable to favourable attitudes, while 0.42 percent had unfavourable attitudes (Table 04). Urban dairy farmers demonstrated a more favourable attitude

toward scientific waste handling practices, such as vermicomposting, biogas production, and hygienic management, compared to peri-urban farmers.

Urban dairy farmers use social media to strengthen their presence in the farming community, gather feedback, facilitate technology demonstrations, maintain continuous communication, and tackle common issues smoothly. These factors bring about the higher proportion of urban farmers (81.25%) with favourable attitudes compared to peri-urban farmers (15%).

These results correspond with Wahval *et al.* (2025), who found that 66.9 percent of respondents had a favourable attitude and recognized manure as an effective fertilizer. Higher education levels and larger herd sizes were linked to better manure management. Respondents also stressed the need for subsidies and training to improve practices.

Table 4: Attitude level of dairy farmers on dairy waste management practices

Attitude Level	Urban (n=80)	Peri-Urban (n=160)	Pooled (n=240)
Unfavourable (<65)	0(0)	1(0.625)	1(0.42)
Moderately Favourable (65-85)	15(18.75%)	135(84.375)	150(62.5)
Favourable (>85)	65(81.25)	24(15)	89(37.08)

Figures in parenthesis indicate percentage

4. Conclusion

The developed perception scale is reliable and valid, rendering it suitable for analyzing dairy farmers' attitudes toward dairy waste management. The analysis showed that most farmers have a moderately favourable attitude (62.5%) toward scientific waste management. Respondents recognised its importance for environmental protection, soil fertility, and sustainable agriculture. However, positive attitudes have not consistently led to better practices due to various constraints. The scale can be an effective means of assessing dairy farmers' attitudes toward waste management.

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