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RESEARCH ARTICLE

Perceived Attributes of Home-made Concentrate Technique Adopted by Buffalo Dairy Entrepreneurs and its Correlation with their Personal Socio-economic Characteristics.

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Abstract

The purpose of this research was to test the applicability of Rogers' theory of innovation diffusion as it relates to measure the perceived attributes of innovations of homemade concentrate technique and to identify whether technique provides overall assessment of the experience of applying them and states whether it is a success or failure, partially or fully. A scale developed by D.A.Nithya Shree and B.S. Siddaramaiah (1996) was used to collect data from peri-urban areas of Marathwada region of Maharashtra by selecting 150 buffalo dairy entrepreneurs during March 2015 on the perceived attributes including relative advantage, compatibility, complexity and practicability by structured interview schedule individually. Regarding relative advantage, the technique was perceived as multiple beneficial, times saving, exorbitant about net profitability, regular in consistency of profit. The technique was independent in relational compatibility, recognizable in social compatibility, compatible with physical compatibility, acceptable in cultural compatibility, and feasible in situational compatibility. In complexity, technique was labour saving, abundant in resource complexity, adoptable in application complexity, easier in cognitive complexity and practicably visible, demonstrable, trialable, reliable. The average attribute of technique had highly significant relationship with social participation, source of information, extension contact, market related information while significant correlation with age, annual income, economic motivation, knowledge level and non-significant relationship with education, herd size, training participation, and adoption level of feeding practices. To increase the rate of adoption, technique should be made commercially feasible with need based research through entrepreneur-scientist-extension-worker interactions, participatory technology appraisal methods, exposure visits and training.

Introduction:-

The livestock sector and dairy industry not only has tremendous growth potential but also plays a crucial role in ameliorating plight of the poor farming communities. Since, agriculture is mostly seasonal do not gives employment throughout the year, however, in dairy farming, employment can be generated round the year in the rural as well as in peri-urban area. India has the world's largest livestock population which is more than 512.05 million and buffaloes contribute 21.23 per cent of the total livestock population (19th Livestock Census-2012). India is the world's largest milk producer, with 16 per cent of global production, followed by the United States of America, China, Pakistan and Brazil, achieving proud production with 132.40 million ton in 2012-13.The per capita availability of milk in India is 290 grams per day, which is slightly more than the world average which is around 285 grams per day. (Source: Basic Animal Husbandry Statistics, Ministry of Agriculture, Government of India)

Urbanization is a common phenomenon in today's world which has changed the face of the cities. The population explosion are shrinking the natural resources like land, water, employment generation, potential of agriculture and animal husbandry sector. On the contrary, globalisation, disinvestment of public sector companies and investment made by foreign investors has led to huge demand of skilled man power in urban area. This situation had forced rural youth to migrate to urban area for employment and resulted in increase in the size of urban area and demand of agriculture and livestock product like milk, egg, meat etc. For converting this opportunity in income generation, entrepreneurs, school dropouts and unemployed youths have started buffalo dairy farming in peri-urban area.

A dairy entrepreneur always expects productive and reproductive performance of animals at optimum level for enhancing cost benefit ratio. The major share of concentrate in feed, contributes maximum cost of production. High yielding buffaloes need quality feed for making more nutrients available to udder cells for synthesis of milk. This could be achieved by feeding home-made concentrate feed. Hence, research institutes have recommended preparation of concentrate mixtures at home to achieve more profit instead of spending more time and money on commercial feed mixtures. It can be prepared at home by grinding and mixing of locally available feed ingredients which helps to minimise the cost of production and also to increase the milk production. In view of fulfilling the demand of producing low cost feed, dairy entrepreneurs, ICAR institutions, Agricultural Universities, dairy cooperative unions, line departments and other agencies like Veterinary Universities, IVRI Izatnagar and NDRI Karnal are undertaking need based research. These institutes develops innovative techniques and diffuse it to end users through extension network by organising demonstrations, trainings, field visits, radio and TV talks, making success stories, print media etc. But, unfortunately, the rate of adoption is very poor at the user end. As per Rogers's observations, any adopter accepts technology or recommendation, when it fulfils the requirement of situation. Therefore, keeping in view of the above situation, an effort was made through this study to find out the perceived attributes of home-made concentrate technique and its correlation with personal socioeconomic characteristics of Buffalo Dairy Entrepreneurs in Marathwada region of Maharashtra State.

Methodology:-

The present study was conducted in Beed, Latur and Parbhani district of Maharashtra state during March 2015.Three districts were selected randomly from Marathwada region and from each selected district 50 respondents were selected purposively from peri-urban area (15 km away from city). Thus, a total of 150 respondents were selected for the study. Dairy entrepreneurs who were rearing a minimum 03 buffaloes not less than three years were considered for the study. An interview schedule based on the objectives of study was prepared for data collection. The data collected through interview was analysed using statistical tools like the mean, standard deviation, frequency and percentage for making simple comparison. The relationship between independent variables and dependent variables were calculated with the help of coefficient of correlation.

The independent variables for the study were age, education, annual income, social participation, source of information, training received, herd size, market orientation, economic motivation, knowledge and adoption level of feeding practices while the dependent variable were perceived attributes of home-made concentrate technique i.e. relative advantage, compatibility, complexity, practicability and constraints faced while feeding buffaloes. A scale developed by D.A.Nithya Shree and B.S. Siddaramaiah (1996) was used to collect data on the perceived attributes of innovation. In each perceived attribute, there were five statements, thus maximum obtainable score by an individual respondent was 25, whereas minimum was 5. On the basis of this raw score, attribute index was worked out by adopting following formula

$$\text{Attribute index} = \frac{\text{Actual obtained score}}{\text{Maximum obtainable score}} \times 100$$

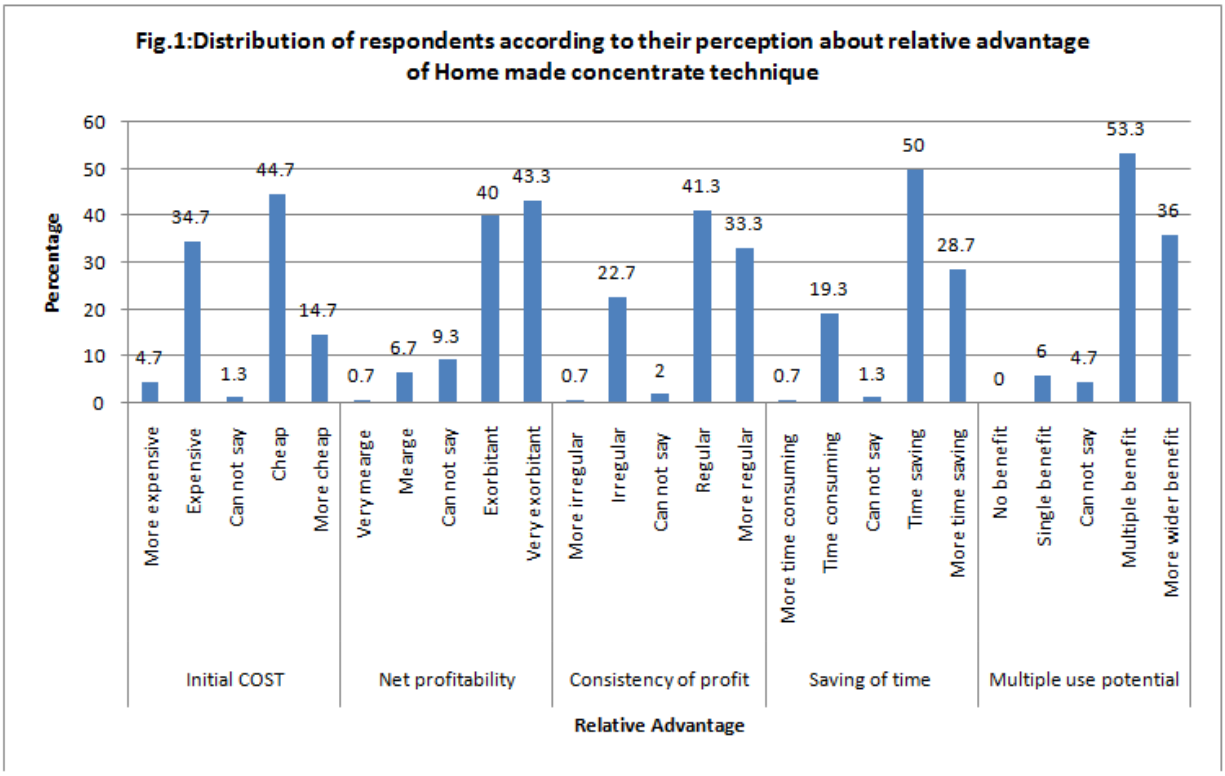
Fig.1:Distribution of respondents according to their perception about relative advantage of Home made concentrate technique
Percentage
60
50
40
30
20
10
0
4.7
34.7
1.3
44.7
14.7
0.7
6.7
9.3
40
43.3
0.7
22.7
2
41.3
33.3
0.7
19.3
1.3
50
28.7
0
6
4.7
53.3
36
More expensive
Expensive
Can not say
Cheap
More cheap
Very mearge
Mearge
Can not say
Exorbitant
Very exorbitant
More irregular
Irregular
Can not say
Regular
More regular
More time consuming
Time consuming
Can not say
Time saving
More time saving
No benefit
Single benefit
Can not say
Multiple benefit
More wider benefit
Initial COST
Net profitability
Consistency of profit
Saving of time
Multiple use potential
Relative Advantage

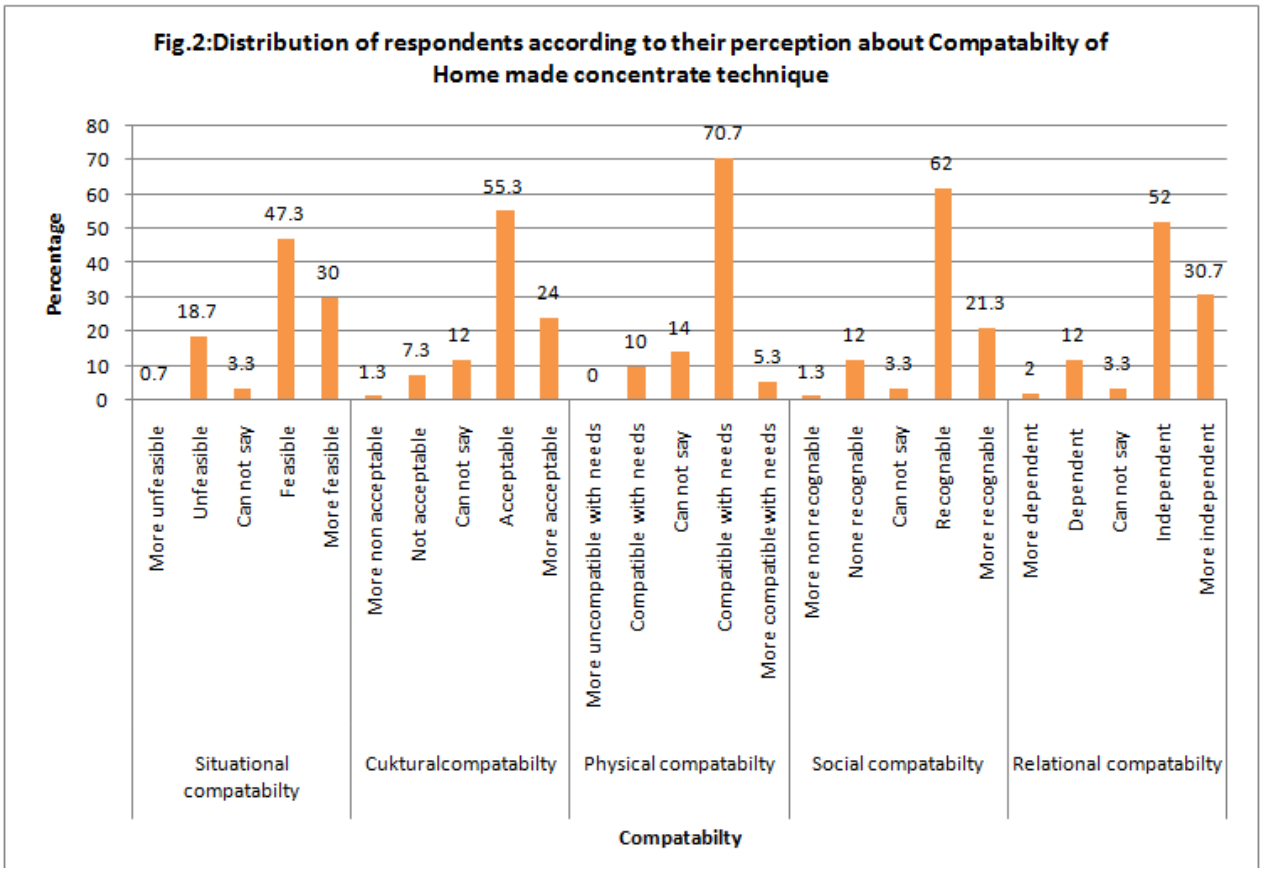
Fig.2:Distribution of respondents according to their perception about Compatabilty of Home made concentrate technique
Percentage
80
70
60
50
40
30
20
10
0
0.7
18.7
3.3
47.3
30
1.3
7.3
12
55.3
24
0
10
14
70.7
5.3
1.3
12
3.3
62
21.3
2
12
3.3
52
30.7
More unfeasible
Unfeasible
Can not say
Feasible
More feasible
More non acceptable
Not acceptable
Can not say
Acceptable
More acceptable
More uncompatible with needs
Compatible with needs
Can not say
Compatible with needs
More compatible with needs
More non recognable
None recognable
Can not say
Recognable
More recognable
More dependent
Dependent
Can not say
Independent
More independent
Situational compatabilty
Cukturalcompatabilty
Physical compatabilty
Social compatabilty
Relational compatabilty
Compatabilty

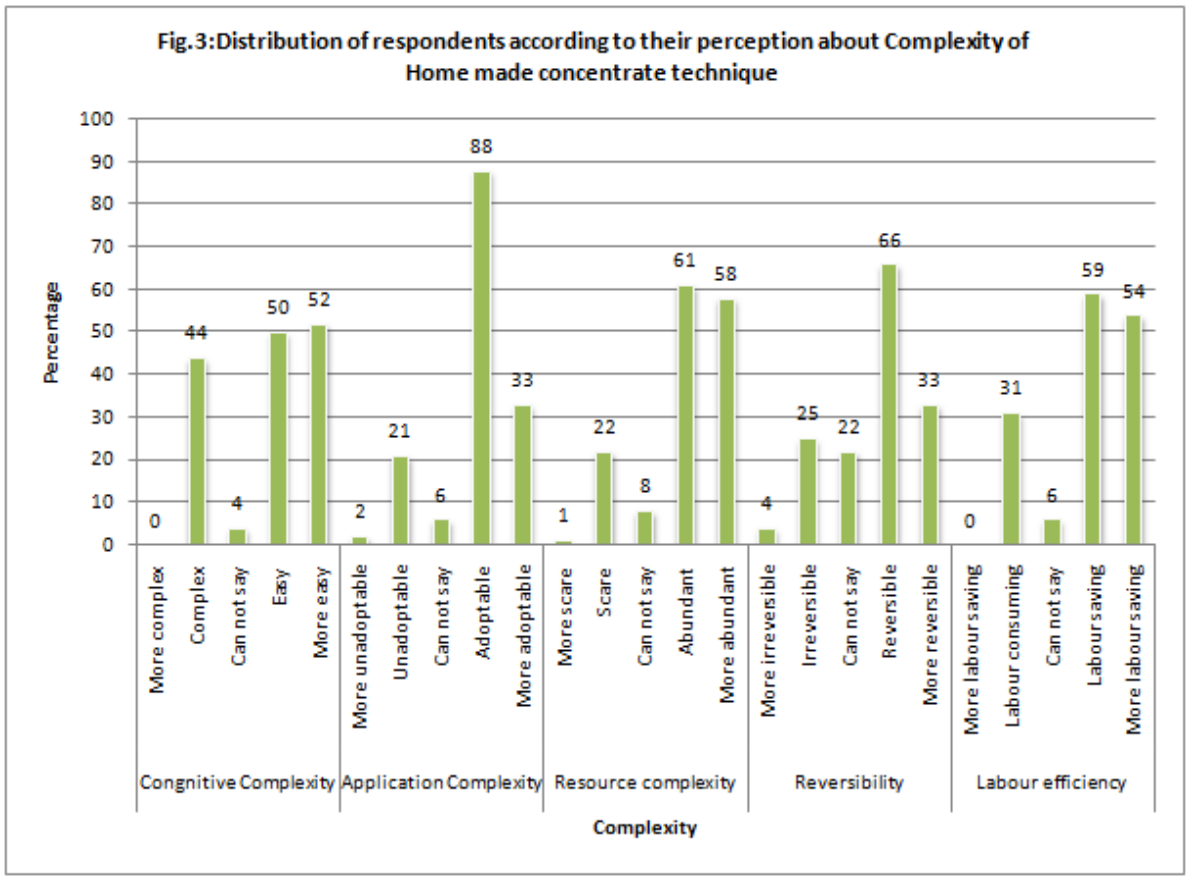
Fig.3:Distribution of respondents according to their perception about Complexity of Home made concentrate technique
Percentage
100
90
80
70
60
50
40
30
20
10
0
0
44
4
50
52
2
21
6
88
33
1
22
8
61
58
4
25
22
66
33
0
31
6
59
54
More complex
Complex
Can not say
Easy
More easy
More unadoptable
Unadoptable
Can not say
Adoptable
More adoptable
More scare
Scare
Can not say
Abundant
More abundant
More irreversible
Irreversible
Can not say
Reversible
More reversible
More labour saving
Labour consuming
Can not say
Labour saving
More labour saving
Congnitive Complexity
Application Complexity
Resource complexity
Reversibility
Labour efficiency
Complexity

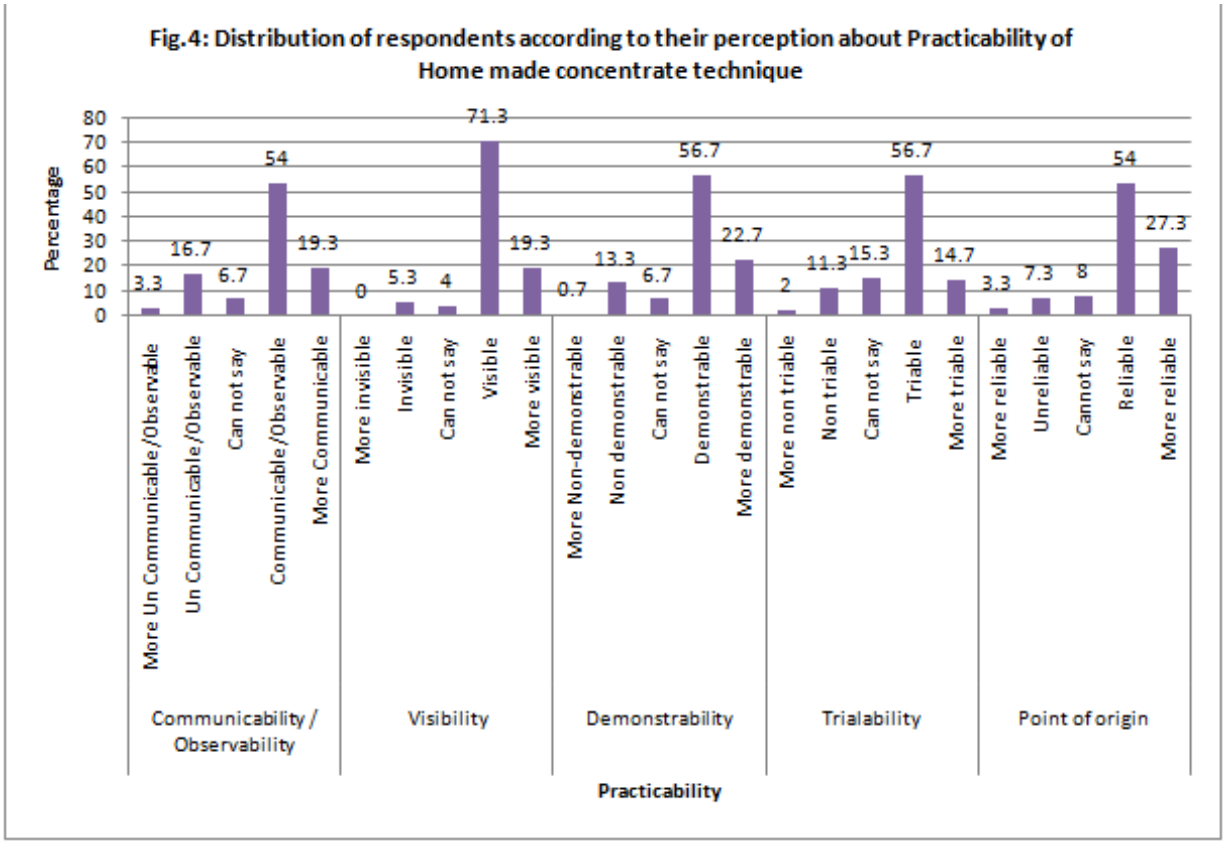
Fig.4: Distribution of respondents according to their perception about Practicability of Home made concentrate technique
Percentage
80
70
60
50
40
30
20
10
0
3.3
16.7
6.7
54
19.3
0
5.3
4
71.3
19.3
0.7
13.3
6.7
56.7
22.7
2
11.3
15.3
56.7
14.7
3.3
7.3
8
54
27.3
More Un Communicable/Observable
Un Communicable/Observable
Can not say
Communicable/Observable
More Communicable
More invisible
Invisible
Can not say
Visible
More visible
More Non-demonstrable
Non demonstrable
Can not say
Demonstrable
More demonstrable
More non triable
Non triable
Can not say
Triable
More triable
More reliable
Unreliable
Cannot say
Reliable
More reliable
Communicability / Observability
Visibility
Demonstrability
Trialability
Point of origin
Practicability

Results and discussion:-

Table 1: Distribution of respondents according to relative advantage of home-made concentrate technique

N=150

Sr. No.	Relative advantage					
1	**Initial cost**	More expensive 7 (4.70 %)	Expensive 52 (34.70 %)	Can't say 2 (1.30 %)	Cheap 67 (44.70 %)	More cheap 22(14.70 %)
2	**Net profitability**	Very merge 1 (0.70 %)	Merge 10 (6.70%)	Can't say 14 (9.30 %)	Exorbitant 60 (40.00%)	Very exorbitant 65(43.30 %)
3	**Consistency of profit**	More irregular (0. 07%)	Irregular 34 (22.70%)	Can't say 3 (2.00 %)	Regular 62 (41.30%)	More regular 50(33.30 %)
4	**Saving of time**	More time consuming 1(0.70 %)	Time consuming 29 (19.30 %)	Can't say 2 (1.30 %)	Time saving 75 (50.00%)	More time saving 43(28.70 %)
5	**Multiple use potential**	No benefit 0 (0.00 %)	Single benefit 9 (6.00 %)	Can't say 7 (4.70 %)	Multiple benefit 80 (53.30%)	More wider benefit 54(36.00 %)

Relative advantage:-

It was operationally defined as the degree to which use of homemade concentrate preparation technique by the respondent was perceived as better and superior over ready-made concentrate or single feed ingredient in terms of cost, profitability, saving of time and multiple use potentiality. Table 1 shows 44.70 per cent, 40.00 per cent, 41.30 per cent, 50.00 per cent and 53.30 per cent of the respondents expressed the studied technique as cheap in initial cost, exorbitant in net profitability, regular in consistency in profit, time saving and had multiple use potential, respectively. These findings are similar with the observations of Kaushik *et.al* (1994), Chavan *et.al* (2007), Savitha *et.al* (2012). Probable reason could be that for sustainable enterprise, it is essential to adopt technique, concept or practice with minimum cost, more consistent in profit and saving time with multiple uses potential. All these expectations might have fulfilled by technology under the study.

Table 2: Distribution of respondents according to compatibility of home-made concentrate technique

N=150

Sr.No.	Compatibility					
1	**Situational compatibility**	More unfeasible 1 (0.70 %)	Unfeasible 28 (18.70 %)	Can't say 5 (3.30 %)	Feasible 71 (47.30 %)	More feasible 45 (30.00 %)
2	**Cultural compatibility**	More non-acceptable 2 (1.30 %)	Not acceptable 11 (7.30 %)	Can't say 18 (12.00 %)	Acceptable 83 (55.30 %)	More acceptable 36 (24.00 %)
3	**Physical compatibility**	More incompatible with needs 0 (0.00 %)	Incompatible with needs 15 (10.00 %))	Can't say 21 (14.00 %)	Compatible with needs 106 (70.70 %)	More compatible with needs 48 (5.30 %)
4	**Social compatibility**	More non recognable 2 (1.30 %)	None recognable 18 (12.00 %)	Can't say 5 (3.30 %)	Recognable 93 (62.00 %)	More reckonable 32 (21.30 %)
5	**Relational compatibility**	More dependent 3 (2.00 %)	Dependent 18 (12.00 %)	Can't say 5 (3.300 %)	Independent 78 (52.00 %)	More independent 46 (30.70 %)

Compatibility:-

It was operationally defined as the degree to which the homemade concentrate technique was perceived as similar or in line with the existing system norms, previous use experiences by the respondent. Data presented in table 2 indicated that the respondents expressed about studied technique as feasible (47.30 %), acceptable (55.30 %),

compatible with needs (70.70 %), recognizable (62.00 %) and independent (52.00%) in situational compatibility, cultural compatibility, physical compatibility, social compatibility, relational compatibility. These findings corroborates with the findings of Stachewicz (2011), Seth *et.al* (2013), Wiegel (2011), Savitha (2012). The technique studied might be consistent with existing value of entrepreneur like profitability, environmental welfare, health and animal welfare, past experience of high value of concentrate, needs of adopters like availability, quality, and formulation with physiological needs of animal.

Table 3: Distribution of respondents according to complexity of homemade concentrate technique

N=150

Sr.No.	**Complexity**					
1	**Cognitive Complexity**	More complex 0 (0.00 %)	Complex 44 (29.30 %)	Can't say 4 (2.70 %)	Easy 50 (33.30 %)	More easy 52 (34.70 %)
2	**Application Complexity**	More unadoptable 2 (1.30 %)	Unadoptable 21 (14.00 %)	Can't say 6 (4.00 %)	Adoptable 88 (58.70 %)	More adoptable 33 (22.00 %)
3	**Resource complexity**	More scare 1 (0.700 %)	Scare 22(14.700 %)	Can't say 8 (5.30 %)	Abundant 61 (40.70 %)	More abundant 58 (38.70 %)
4	**Reversibility**	More irreversible 4 (2.70 %)	Irreversible 25(16.70 %)	Can't say 22 (14.70 %)	Reversible 66 (44.00 %)	More reversible 33 (22.00 %)
5	**Labour efficiency**	More labour saving 0 (0.00 %)	Labour consuming 31 (20.70 %)	Can't say 6 (4.00 %)	Labour saving 59 (39.30 %)	More labour saving 54 (36.00 %)

Complexity:-

It was the degree to which the technique was perceived as similar or in line with the existing system norms, previous use experiences by the respondent. A perusal of the data in table 3 reveals that 34.70 per cent respondents perceived this technique as more easy, 58.7 per cent perceived as adoptable, 40.70 per cent as abundant, 44.00 per cent expressed as reversible and 39.30 per cent expressed as labour saving in cognitive complexity, application complexity, resource complexity, reversibility and labour efficiency. These findings are at par with the earlier records of Seth (2013), Wiegel (2011), and Savitha (2012). Any individual or entrepreneur gains knowledge through non-formal and informal education. The idea or technique which is simple, easy to understand, applicable with production factor i.e. man, money and material, labour could be used efficiently and also its rate of adoption would be more and the technology under study might be fulfilling the same criteria.

Table 4: Distribution of respondents according to practicability of homemade concentrate technique

N=150

Sr. No	**Practicability**					
1	Communicability / Observability	More unobservable 5 (3.30 %	Unobservable 25 (16.70 %)	Can't say 10(6.7%)	Observable 81 (54.00 %)	More observable 29 (19.30 %)
2	Visibility	More invisible 0 (0.00 %)	Invisible 8 (5.30 %)	Can't say 6(4.0 %)	Visible 107 (71.30 %)	More visible 29 (19.30 %)
3	Demonstrability	More non-demonstrable 1 (0.70 %)	Non demonstrable 20 (13.30 %)	Can't say 10(6.7%)	Demonstrable 85 (56.70 %)	More demonstrable 34 (22.70 %)
4	Trialability	More non triable 3 (2.00 %)	Non triable 17 (11.30 %)	Can't say 23(15.3 %)	Trialable 85 (56.70 %)	More triable 22 (14.70 %)
5	Point of origin	More unreliable 5 (3.30 %)	Unreliable 11 (7.30 %)	Can't say 12(8. %)	Reliable 81 (54.00 %)	More reliable 41 (27.30 %)

Practicability:-
It was the degree to which the technique was perceived as similar or in line with the existing system norms, previous use experiences by the respondent. Table 4 shows that most of respondents expressed technique as observable (54.00 %), visible (71.30 %), demonstrable (56.70 %), trialable (56.70%) and reliable (54.00 %). The observations of Seth *et.al* (2013) and Wiegel (2011) supports the present findings. The dairy entrepreneurs might have adopted the technology after getting information from reliable sources by observing method of preparation and its effect on production.

Rational Analysis:
In present investigations, an attempt was made to find out the relationship between the personal, socioeconomic characteristics of respondents with perceived attributes of homemade concentrate technique.

Table 5: Correlation between attributes of home-made concentrate technique with personal socio-economic characteristics of respondents.

Sr. No.	Variables	Perceived attributes			
		Relative advantage	Compatibility	Complexity	Practicability
1	Age	0.196*	0.247*	0.174NS	0.264**
2	Education	0.098^{NS}	0.163 ^{NS}	0.082 ^{NS}	0.214*
3	Annual income	0.246*	0.271**	0.243*	0.314**
4	Social participation	0.327**	0.373**	0.354**	0.421**
5	Information source	0.299**	0.344**	0.331**	0.392**
6	Extension contact	0.254**	0.284**	0.237*	0.331**
7	Herd size	-0.040 ^{NS}	0.012 ^{NS}	-0.094 ^{NS}	0.013 ^{NS}
8	Training participation	0.171 ^{NS}	0.180 ^{NS}	0.193 ^{NS}	0.259**
9	Market information	0.240*	0.302**	0.297**	0.341**
10	Economic motivation	0.242*	0.211*	0.162NS	0.288**
11	Knowledge level	0.237*	0.291**	0.223*	0.319**
12	Adoption level	0.149 ^{NS}	0.201*	0.140 ^{NS}	0.237*

** Significant at 0.01 level of probability
* Significant at 0.05 level of probability, NS – Non significant

1. Correlation of relative advantage with personal, socio-economic characteristics
Table 5 indicates that relative advantage of homemade concentrate technique shoed highly significant relationship with social participation, source of information, extension contact and significant correlation with age, annual income, market related information, economic motivation, knowledge level of feeding practices while non-significant relationship with education, herd size, training participation and adoption level of feeding practices by the respondents. These findings go well with the findings of Stachewicz (2011) and Wiegel (2011). The school level education, middle age, medium herd size of the respondent were responsible for dependency information on pear group member, extension worker, change agents, print and electronic media for getting more authentic reliable and need based information. They might be thinking that production traits performance cannot be altered with market information.

2. Correlation of compatibility with personal, socioeconomic characteristics
Table 5 clearly shows that compatibility of technique was found to bear highly significant relationship with annual income, social participation, source of information, extension contacts, market related information, feeding knowledge level and significant correlation with age, economic motivation and adoption level of feeding practices

of respondents, while non-significant relationship with education, herd size, training participation. These findings are in line with the findings of Stachewicz (2011).

3. Correlation of complexity with personal, socioeconomic characteristics

It is revealed in Table 5 that complexity of technique was found to bear highly significant relationship with social participation, source of information, market related information, and significant correlation with extension contacts, knowledge level while non-significant relationship with age, education, herd size, training participation, economic motivation and adoption level of the respondents. Stachewicz (2011) in his study reported similar observations. The respondent might have perceived the present technique as is labour saving, simple, easily adoptable and managed with available resources.

4. Correlation of practicability with personal, socio economic characteristics

Table 5 further shows that practicability of technique was found to bear highly significant relationship with age, annual income, social participation, source of information, extension contact, training participation, market related information, economic motivation, knowledge level while significant correlation with education, training expectation, and adoption level and non-significant relationship with herd size. These findings are controversial with the earlier findings of Stachewicz (2011). The seeing believes principle might have followed by respondents. Since technique is more demonstrable, respondent may undertake trial and get information from authentic sources.

Conclusion:-

The present study concluded that home-made concentrate technique was relatively more advantageous due to its factors such as multiple beneficial, times saving, exorbitant about net profitability and regular in consistency of profit. In compatibility technique was perceived as feasible, acceptable, compatible with needs, recognizable and independent. The technique was less complex as it was labour saving, reversible, abundant in resource complexity, adoptable in application complexity and easier in cognitive complexity. This technique was practicable since it was visible, demonstrable, trialable, reliable and observable.

Recommendations:-

To increase the rate of adoption, technique should be made feasible with need based research from Research Institutes and Universities by organising effective extension awareness programme through farmer-scientist-extension-worker interactions, participatory technology appraisal methods, exposure visits and training. There is also need of technology diffusion through proper channel at proper time by making commercialization of technique by assessing attributes of innovation.

References:-

1. Aaron B. Stachewicz, (2011). Measuring the Perceived Attributes of Innovation: A Study of Capacitive Switch Technology in Industrially Designed. User Interface Controls. Master's Thesis and Doctoral Dissertations at Digital Commons@EMU, Paper 359.
2. B.Savitha, R. Ratnakar and K.Suhasini (2012). Perception of Attributes of Organic and Conventional Farming by Farmers in Andhra Pradesh*: Journal of Agricultural Extension Management, Vol. XIII*
3. Chavan B.J. (2007). Perception of farmer about attribute of BT cotton.M.Sc. (Agri) thesis submitted to Dr.Panjabrao Deshmukh Krishi Vidyapeeth Akola
4. Jonas Hagmann (2012). Opportunities and constraints of peri-urban dairy buffalo and dairy cattle systems in Faisalabad, Punjab, Pakistan, MSc thesis, University of Kassel, International Centre for Development and Decent Work (ICDD) Working Papers Paper No. 2 I .
5. Kaushik, S.; T.Verma and S.Kashyap. (1987). Attributes of Solar Cooker for acceptability among rural women through persuation.*Maharashtra J.Extn.Educ.**VI**:55-60 (1994)*
6. Nithya Shree D.A. and B.S. Siddaramaiah (1996). A Scale to Measure the Perception of Attributes of an Innovation .University of Agricultural Science. Hebbel, Bangalore. *Tropical Agricultural Research Vol. 8, 55-6.1.*
7. Pankaj Seth (2013).Diffusion of crossbreeding technology in piggery: A case of 'T&D' breed in Eastern region of India .A Full Length Research Paper, *African Journal of Agricultural Research Vol. **9**(3), pp. 407-417, 16.*
8. Rogers, E.M. (1995).Diffusion of Innovation. New York, The Free Press.
9. Tey, Y. (2013).A structured assessment on the perceived attributes of sustainable Agricultural practices: a study for the Malaysian vegetable production sector, *Asian Journal of Technology Innovation, **21**(1):120-135.*
10. Whitney J. Wiegel (1999). Adoption of Organic Farming Systems in Missouri. A Thesis presented to the Faculty of the Graduate School University of Missouri Columbia. In partial fulfilment of the requirements for the degree Master of Science.