

## DAIRY FARMING KNOWLEDGE OF THE TRIBAL CATTLE OWNERS IN DROUGHT PRONE AREAS OF MAHARASHTRA

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### ABSTRACT

A knowledge test, to measure the level of dairy farming knowledge of tribal cattle owners in drought prone areas of Maharashtra State, was constructed by adopting item difficulty, discrimination index and point-biserial correlation. On an average, respondents possessed only 22.92% of the desired knowledge of scientific dairy farming practices. A large section (46.0%) of tribal cattle owners had low (upto 15.93%) of this knowledge, 27.5% had medium level of knowledge and 26.5 had high (<30.47%) level of knowledge.

### INTRODUCTION

Knowledge plays a vital role in the adoption of improved farm practices. Bhati (1976) and Bapat and Brahmhatt (1976) observed that knowledge of technical know-how of new agricultural practices was negligible in the case of tribals and hence they go for traditional method of agriculture.

With the vast resource potentiality existing in the tribal areas, there is considerable scope for development of dairy industry which will supplement the income of the tribals. Dairy farming assumes different and serious shades of production and marketing processes in drought prone area. The productivity of animals, knowledge constraints of farmer and low level of economic equilibrium of farm families, especially tribal families in drought prone area, combine to generate more risky milk production. An attempt has been made in this study to construct a test to measure the level of dairy farming knowledge possessed by the tribal cattle owners in Maharashtra State.

### MATERIAL AND METHODS

In the present study, knowledge is referred to as the understanding of tribal cattle keepers about the selected scientific dairy husbandry practices. It was measured through a test developed after Lindquist (1951). The following steps were taken to construct the knowledge test.

#### *Collection of Items*

An item pool of questions was prepared by consulting extension literature like bulletins, leaflets and recommended package of practices for dairy farmers applicable

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to the study area. The subject matter specialists and extension personnel of agricultural universities and State animal husbandry department of Maharashtra were also consulted to cover various raw-items on breeding, feeding, management and health-care practices of dairy farming. The 60 raw-items so collected to reflect the expected knowledge of the tribal farmers were then edited and reduced to 33 according to the criteria suggested by Edwards (1969).

#### *Item Selection*

The 33 items were then administered as questions to 35 test respondents in a non-sample area during pilot survey. Scores of 1 and 0 were given to correct and incorrect responses, respectively, for all the questions and as such the theoretical score extremes were 33 and 0. The items for the final test were selected on the basis of item difficulty, discrimination index and point-biserial correlation.

Item difficulty was considered by the number of examinees in the group getting it correct, being the standard procedure (Garret, 1966) :

$$DI = \sqrt{\frac{pq}{100}}$$

Where, DI = Difficulty index

p = Percentage respondents who answered correctly.

q = Percentage respondents who answered wrongly.

Since the item difficulty index ranged from 0.05 to 0.88 for all 33 items considered for the test, only the items having difficulty index ranging from 0.22 to 0.77 were taken into consideration so as to eliminate very difficult and very easy ones.

The discrimination index (deviation in response pattern) of an item was calculated by using the formula :

$$DI = \frac{N_H - N_L}{n}$$

Where, DI = Discrimination Index

$N_H$  = Number of respondents in 27 per cent high group who answered correctly.

$N_L$  = Number of respondents in 27 per cent low group who answered correctly.

n = Number of respondent in 27 per cent sample.

The total scores of the 35 test respondents were arranged in ascending order to cut off the two extreme groups; the top 11 and the bottom 11 respondents which were used in computing the discrimination index varied from 0 to 0.88 (Table 1). Only the items having medium discrimination indices (> 0.20) were included in the final test.

Table 1. Point biserial correlation values, item difficulty and discrimination indices of knowledge statements

S No	‡Statements	Point biserial correlation values	Item difficulty index	Discrimination index
1	2	3	4	5
1	What are the possible ways by which milch animals can be bred ?	0.325*	0.77	0.44
2	What are the advantages of artificial insemination ?	0.445**	0.57	0.78
3	What are the symptoms of an animal in heat ?	0.436**	0.68	0.55
4	If the cow comes into heat in the morning, when it should be inseminated ?	0.443**	0.60	0.22
5	When the cow should be covered after each calving ?	0.040	0.20	0.00
6	If your animal is not coming in heat 3 months after calving what should be done ?	0.321	0.65	0.44
7	When should a pregnant animal be examined for pregnancy ?	0.157	0.11	0.11
8	How much time a cow usually takes to drop the placenta after calving ?	0.316	0.68	0.44
9	When the placenta is not shed when it should be got removed ?	0.327*	0.28	0.22
10	A good dairy animal should have a prominent, capacious udder	0.194	0.82	0.11
11	A good dairy animal should have tortuous milk veins emerging out of the udder	0.332*	0.05	0.22
12	Name some exotic breeds which are being used for cross-breeding in your area	0.134	0.48	0.12
13	How you can identify a cross-bred animal ?	0.637**	0.88	0.88
14	What is the gestation period for cows/buffalo ?	0.059	0.48	0.85
15	What do you understand by a balanced cattle feed ?	0.256	0.11	0.44
16	Is there necessity of giving special feed for 7-8 months pregnant animal ?	0.412*	0.68	0.22
17	What quantity of concentrates should be given to a pregnant animal ?	0.58	0.20	0.11
18	What should an animal be fed just before calving ?	0.048	0.60	0.44

were poorer in Cu, as compared to other landforms. Considering 0.2 ppm DTPA-extractable Cu as the critical value (Lindsay and Norvell, 1978), all the soils appear to be Cu sufficient, except for the soils of aeolian plains with dunes.

Taking 4.5 ppm as the critical value of DTPA-extractable iron (Lindsay and Norvell, 1978), 75% of the soil samples indicated inadequacy of available iron as also reported in an earlier study (Anonymous, 1983). The results suggest the need for iron supplementation to prevent chlorosis in crops. However, forecasting iron deficiency on the basis of soil analysis alone may not be a fool-proof method. Judgement about iron deficiency should rather be based on an interaction of high pH, calcareousness, organic matter status, climate etc., the factors known to affect availability of iron.

Simple correlation studies showed that the available Zn and Fe did not have any significant correlation with any of the soil properties studied. The available Mn was found to have significantly positive correlation with pH ( $r = +0.43^{**}$ ) and EC ( $r = +0.37^{**}$ ). Similar was the relation between available Cu and pH ( $r = 0.29^*$ ), and Cu and EC ( $r = +0.30^*$ ). Multiple regression analyses revealed that the combined influence of the factors like pH, EC, organic carbon and the respective micronutrients caused variations in the contents of available Zn, Mn, Cu and Fe to the extent of 22, 42, 44 and 33 per cent, respectively. However, the partial regression coefficients indicate the dominant and significant influence only of pH on the available Mn, and of available Cu on available Mn and Fe. The available zinc was not influenced significantly by any of the soil characters.

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