RESEARCH ARTICLE :

Extent of adoption of management practices of Deoni cattle and non-descriptive cattle by the rearers

■ **B.L. PISURE, P.R. DESHMUKH AND R.P. KADAM**

SUMMARY : The present study was conducted purposively in Latur district of the Marathwada region of Maharashtra state. From this district six tahsils were selected. Four villages from each taluka were selected purposively. The total villages for the study were 24. Ten respondents from each village were selected purposively for the study. Comprising 120 respondents of Deoni cattle and 120 respondents of non-descriptive cattle from Latur district were selected. Thus, there were a total of 240 respondents selected for the research study. Ex-post facto research design was adopted in this study. The data were collected with the help of pretested interview schedule. The statistical methods and tests such as frequency, percentage, mean, standard deviation, co-efficient of correlation, multiple regressions, Z test and path analysis were used for the analysis of data. It was found that more than three fourth (70.00 %) of deoni cattle rearers and two third (66.66 %) of non-descriptive cattle rearers had medium level of overall adoption of different cattle management practices for cattle rearing.

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BACKGROUND AND OBJECTIVES

Livestock is an important source of income for a nation. The significance of animal husbandry in the Indian economy arises also because its assistance to tackle the serious problem of unemployment, under employment and for reducing the poverty for weaker section in the country and for providing subsidiary occupation. It also plays a dominant role in the dryland agriculture particularly in the semi-arid and arid areas of the country. The total livestock population of Maharashtra state according to 19th Livestock Census (2012) is 3,24,88,652. Total exotic/crossbred cattle female in Maharashtra is 3105627 (in milk-1396402, dry-576882, not calved once-73426). Total indigenous cattle in Maharashtra are 11559938 (total female-4897507, in milk-1648173, dry-1308876, not calved once-181239) (Anonymous, 2012).

In the rural agriculture, the most commonly employed farm power apart from manual labour invariably comes from cattle which distinctly stand out from other farm animals. Cattle are an important source of livelihood for the rural people particularly for women, landless labour and marginal farmers

living in the interior areas, who do not have the other means of survivals. Cattles are a multifunctional animal and plays a significant role in the economy and nutrition of the people. Cattles are kept as a source of additional income and as an insurance against disaster in farming. In addition to this, cattles have religious and ritualistic importance in many societies. Cattle rearing is very good enterprise for small and marginal farmers, and landless agricultural labours. Cattle provide milk which has medicinal value recommended for patients suffering from peptic ulcers, jaundice, insomnia, etc. In this content, it is worth mentioning that the study of utility perception about Deoni cattle and other non-descriptive cattle by the cattle rearers is a means to an end of making animal husbandry more useful. Efficient use of these animals in turn depends on their feeding, maintenance of their health and fitness and training them to adapt to different kinds of work has a definite say in successful agriculture. A good measure of efficiency of livestock enterprise in any country is its contribution to the country's national income. Livestock production and agriculture are intrinsically linked, each being dependent on the other, and both crucial for overall food security.

RESOURCES AND METHODS

The present study was conducted in Latur district of the Marathwada region of Maharashtra state which was purposively selected for the research study. From this district six tahsils were selected for the study. Four villages from each taluka were selected purposively for the study. The total villages for the study were 24. Ten respondents from each village (Five respondents of Deoni cattle and five respondents of non-descriptive cattle) were selected purposively for the study. Comprising 120 respondents of Deoni cattle and 120 respondents of non-descriptive cattle from Latur district were selected for the study. Thus, there were a total of 240 respondents selected for the research study. Ex-post facto research design was adopted in this study. The data were collected with the help of pretested interview schedule from the respondents as per their convenience at their home or farms. The statistical methods and tests such as frequency, percentage, mean, standard deviation, co-efficient of correlation, multiple regressions, Z test and path analysis were used for the analysis of data.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Knowledge of of Deoni cattle rearers and non-descriptive cattle rearers :

It is revealed from Table 1 that, most (42.50 %) of Deoni cattle rearers and majority (40.00%) of non-descriptive cattle rearers had high and medium level of knowledge regarding breeds management of cattle, respectively. Further 35.83 per cent of Deoni cattle rearers had medium knowledge and 32.50 per cent of non-descriptive cattle rearers had high knowledge about breeds management followed by 21.67 per cent and 27.50 per cent of Deoni cattle rearers and non-descriptive cattle rearers, respectively were categorized under low category of knowledge level about breeds management.

Regarding the knowledge level of cattle rearers about calf and cattle care management practices is also presented in the Table 1 which shows that, nearly half (50.83 %) of Deoni cattle rearers were having medium level of knowledge about calf and cattle care management practices followed by 39.17 of them had high knowledge and remaining 20.84 of Deoni cattle rearers had low knowledge regarding management practices of calf and cattle care. As far as non-descriptive cattle rearers, nearly equal percentage of them *i.e.* 36.67 per cent and 35.00 per cent of them were having medium and high level of knowledge about calf and cattle care management practices, respectively. Remaining (28.33%) of them was categorized under low level of knowledge about calf and cattle care management practices.

Table 1 also shows that, majority of the respondents from both Deoni cattle rearers and non-descriptive cattle rearers *i.e.* 50.83 per cent and 53.33 per cent, respectively had medium level of knowledge regarding breeding management practices of cattle, followed by 25.83 per cent of Deoni cattle rearers and 30.83 per cent of non-descriptive cattle rearers were having high knowledge about breeding management practices of cattle, 23.34 per cent Deoni cattle rearers and 15.83 per cent of non-descriptive cattle rearers were having low level of knowledge regarding breeding management practices of cattle, respectively.

In case of knowledge about feeding management of cattle Table 1 revealed that, nearly equal *i.e.* 60.83

per cent and 60.00 per cent of Deoni cattle rearers and non-descriptive cattle rearers, respectively had medium

knowledge about feeding management of cattle. It is also seen from table that, 22.50 per cent of Deoni cattle

Table 1 : Distribution of respondents according to their knowledge							
Sr. No.	Category	Deoni cattle rearers (n=120)			Non-descriptive cattle rearers (n=120)			'Z' values
		Score	F	%	Score	F	%	
Breeds management								
1.	Low	Upto 06	26	21.67	Upto 06	33	27.50	01.16[NS]
2.	Medium	07 to 09	43	35.83	07 to 09	48	40.00	
3.	High	10 and above	51	42.50	10 and above	39	32.50	
		Total	120	100	Total	120	100	
		Mean		08.26	Mean		07.98	
		SD		01.89	SD		01.83	
Calf and cattle care management								
1.	Low	Upto 12	25	20.84	Upto 12	34	28.33	02.95**
2.	Medium	13 to 15	48	50.83	13 to 14	44	36.67	
3.	High	16 and above	47	39.17	15 and above	42	35.00	
		Total	120	100	Total	120	100	
		Mean		14.23	Mean		13.48	
		SD		01.99	SD		01.95	
Breeding management								03.78**
1.	Low	Upto 14	28	23.34	Upto 13	19	15.83	
2.	Medium	15 to 18	61	50.83	14 to 16	64	53.33	
3.	High	19 and above	31	25.83	17 and above	37	30.83	
		Total	120	100	Total	120	100	
		Mean		16.42	Mean		15.31	
		SD		02.46	SD		02.07	
Feeding management								02.16*
1.	Low	Upto 25	20	16.67	Upto 24	20	16.67	
2.	Medium	26 to 31	73	60.83	25 to 30	72	60.00	
3.	High	32 and above	27	22.50	31 and above	28	23.33	
		Total	120	100	Total	120	100	
		Mean		28.65	Mean		27.55	
		SD		03.88	SD		04.00	
Health management								02.66**
1.	Low	Upto 9	16	13.34	Upto 8	21	17.50	
2.	Medium	10 to 14	70	58.33	9 to 13	69	57.50	
3.	High	15 and above	34	28.33	14 and above	30	25.00	
		Total	120	100	Total	120	100	
		Mean		12.47	Mean		11.43	
		SD		03.02	SD		03.03	
Miscellaneous management								1.204[NS]
1.	Low	Upto 10	24	20.00	Upto 10	32	26.67	
2.	Medium	11 to 16	66	55.00	11 to 15	58	48.33	
3.	High	17 and above	30	25.00	16 and above	30	25.00	
		Total	120	100	Total	120	100	
		Mean		13.58	Mean		13.05	
		SD		03.42	SD		03.40	

* and ** indicate significance of value at P=0.05 and 0.01, respectively   NS= Non- significant

rearers and 23.33 per cent of non-descriptive cattle rearers were categorized under high level category of knowledge regarding feeding management of cattle while, equal percentage (16.67 %) of both cattle rearers, respectively had low knowledge regarding feeding management practices of cattle.

The data presented in Table 1 also show that, 58.33 per cent of Deoni cattle rearers and 57.50 per cent of non-descriptive cattle rearers were having medium knowledge regarding health management of cattle followed by 28.33 per cent of Deoni cattle rearers and 25.00 per cent of non-descriptive cattle rearers had high level of knowledge about health management of cattle. Remaining 13.34 per cent Deoni cattle rearers and 17.50 per cent non-descriptive cattle rearers were categorized in the low level of knowledge regarding health management practices of cattle.

In relation to the miscellaneous management practices of cattle the data given in the Table 1 report that, majority of the respondents from both cattle rearers *i.e.* 55.00 per cent Deoni cattle rearers and 48.33 per cent non-descriptive cattle rearers were categorized under medium category of knowledge regarding miscellaneous management of cattle whereas, 25.00 per cent and 20.00 per cent of Deoni cattle rearers had high and low knowledge about miscellaneous management of cattle, respectively. Further, 26.67 per cent of non-

descriptive cattle rearers had low knowledge about miscellaneous management of cattle while, remaining of them (25.00 %) were having high knowledge about different miscellaneous management practices.

Overall knowledge :

The data presented in the Table 2 revealed that, nearly two third (65.83 %) of Deoni cattle rearers had medium level of overall knowledge whereas, 17.50 per cent and 16.67 per cent of them were categorized under high level and low level categories of overall knowledge, respectively.

In relation to non-descriptive cattle rearers it is seen from Table 2 that, 64.17 per cent of them had medium level of overall knowledge followed by 18.33 per cent had high and 17.50 per cent of them had low level of overall knowledge.

The calculated 'Z' value 03.58 was significant at 0.01 level of probability which indicates that there was significant difference in the knowledge of Deoni cattle rearers and non-descriptive cattle rearers.

Knowledge index :

It is evident from Table 3 that, nearly three fourth (74.16 %) of Deoni cattle rearers were categorized under medium knowledge followed by 14.17 per cent and 11.67 per cent of them had low and high knowledge,

Table 2 : Distribution of respondents according to their overall knowledge

Sr. No.	Category	Deoni cattle rearers (n=120)			Non-descriptive cattle rearers (n=120)			'Z' value
		Score	F	%	Score	F	%	
1.	Low	Upto 82	20	16.67	Upto 80	21	17.50	
2.	Medium	83 to 104	79	65.83	81 to 97	77	64.17	03.58**
3.	High	105 and above	21	17.50	98 and above	22	18.33	
		Total	120	100	Total	120	100	
		Mean	93.60		Mean	88.80		
		SD	11.71		SD	08.80		

** indicates significance of value at P= 0.01 level of probability

Table 3 : Distribution of respondents according to their knowledge index

Sr. No.	Category	Deoni cattle rearers (n=120)			Non-descriptive cattle rearers (n=120)			'Z' value
		Score	F	%	Score	F	%	
1.	Low	Upto 71.83	17	14.17	Upto 70.18	25	20.83	
2.	Medium	71.84 to 92.37	89	74.16	70.19 to 85.60	75	62.50	03.59**
3.	High	92.38 and above	14	11.67	85.61 and above	20	16.67	
		Total	120	100	Total	120	100	
		Mean	82.11		Mean	77.89		
		SD	10.28		SD	07.72		

** Significant at 0.01 level of probability

respectively.

Table 3 also shows that, nearly two third (62.50 %)

of the non-descriptive cattle rearers had medium knowledge while 20.83 per cent and 16.67 per cent had

Table 4 : Distribution of respondents according to their adoption

Sr. No.	Category	Deoni cattle rearers (n=120)			Non-descriptive cattle rearers (n=120)			'Z' values
		Score	F	%	Score	F	%	
Breeds management								
1.	Low	Upto 04	26	21.67	Upto 04	30	25.00	
2.	Medium	05 to 06	58	48.33	05 to 06	62	51.67	02.85**
3.	High	07 and above	36	30.00	7 and above	28	23.33	
		Total	120	100	Total	120	100	
		Mean		05.90	Mean		05.31	
		SD		01.67	SD		01.53	
Calf and cattle care management								
1.	Low	Upto 12	25.00	20.83	Upto 12	40	33.33	
2.	Medium	13 to 15	62.00	51.67	13 to 14	42	35.00	
3.	High	16 and above	33.00	27.50	15 and above	38	31.67	01.72^{NS}
		Total	120	100	Total	120	100	
		Mean		13.92	Mean		13.48	
		SD		02.05	SD		01.90	
Breeding management								
1.	Low	Upto 11	18	15.00	Upto 11	24	20.00	
2.	Medium	12 to 16	77	64.17	12 to 15	78	65.00	
3.	High	17 and above	25	20.83	16 and above	18	15.00	02.29*
		Total	120	100	Total	120	100	
		Mean		14.09	Mean		13.33	
		SD		02.71	SD		02.20	
Feeding management								
1.	Low	Upto 22	26	21.67	Upto 21	28	23.34	
2.	Medium	23 to 30	68	56.66	22 to 28	61	50.83	
3.	High	31 and above	26	21.67	29 and above	31	25.83	1.995*
		Total	120	100	Total	120	100	
		Mean		26.42	Mean		25.28	
		SD		04.65	SD		04.19	
Health management								
1.	Low	Upto 09	20	16.67	Upto 09	27	22.50	
2.	Medium	10 to 14	77	64.16	10 to 13	71	59.17	
3.	High	15 and above	23	19.17	14 and above	22	18.33	01.49^{NS}
		Total	120	100	Total	120	100	
		Mean		11.84	Mean		11.30	
		SD		02.91	SD		02.68	
Miscellaneous management								
1.	Low	Upto 07	23	19.17	Upto 07	21	17.50	
2.	Medium	08 to 12	68	56.66	08 to 12	78	65.00	
3.	High	13 and above	29	24.17	13 and above	21	17.50	00.68^{NS}
		Total	120	100	Total	120	100	
		Mean		10.20	Mean		09.95	
		SD		03.06	SD		02.61	

* and ** indicate significance of values at P=0.05 and 0.01, repectively   NS = Non- significant

low and high knowledge, respectively. The distribution of the respondents on the basis of knowledge index is shown in Fig. 1. Similar findings were observed by Halakatti *et al.* (2007); Mande *et al.* (2008); Khode *et al.* (2009); Sharma *et al.* (2009); Ainlawar (2012); Prajapati (2012); Kumhar *et al.* (2013); Pawar (2013); Singh *et al.* (2013); Mali *et al.* (2014) and Rathod *et al.* (2014).
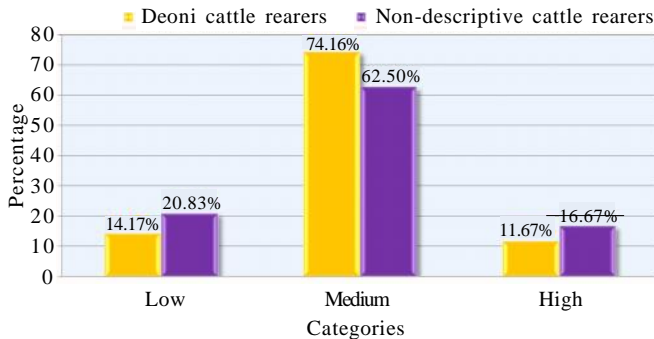

Fig. 1 : **Distribution of respondents according to their knowledge index**

The calculated 'Z' value 03.59 was highly significant at 0.01 level of probability which indicates that there was a significant difference in the knowledge level of Deoni cattle reaeres and knowledge level of non-descriptive cattle rearers. All these results might be due to the fact that majority of the cattle rearers personal, socio-economic and psychological characteristics might be middle category in the present study and may be due to awareness and experience of cattle rearing of the cattle rearers.

Extent of adoption of management practices of Deoni cattle and non-descriptive cattle by the rearers :

It is crystal clear from Table 4 that, 48.33 per cent of Deoni cattle rearers and more than half (51.67 %) of non-descriptive cattle rearers were medium level of adoption regarding breeds management of cattle whereas, 30.00 per cent of Deoni cattle rearers had high level and 25.00 per cent of non-descriptive cattle rearers had low level of adoption of breeds management of cattle. Further, 21.67 per cent Deoni cattle rearers and 23.33 per cent non-descriptive cattle rearers were having low level of adoption and high level of adoption of breeds management, respectively.

In case of calf and cattle care management practices, the data enlisted in Table 4 notice that nearly two third (62.00 %) of Deoni cattle rearers were adopting these practices at medium level while, 33.00 per cent had high level and 25.00 per cent of them had low level of adoption of different calf and cattle management practices. Further, in relation to the non-descriptive cattle rearers the data given in the table show that 35.00 per cent and 33.33 per cent of them were adopting calf and cattle care management practices at medium and low level, respectively while, remaining of them *i.e.* 31.67 per cent were having high level of adoption of calf and cattle care management practices.

It is elucidated from Table 4 that majority of the respondents from both categories *i.e.* 64.17 per cent of Deoni cattle rearers and nearly two fourth (65.00 %) of non-descriptive cattle rearers were having medium level of adoption of different breeding management practices, respectively followed by 20.83 per cent of Deoni cattle rearers had high level of adoption and 20.00 per cent of non-descriptive cattle rearers had low level of adoption of these management practices relating to breeding management of cattle. Whereas, an equal percentage of Deoni cattle reaers and non-descriptive cattle rearers *i.e.* 15.00 per cent each were having low level and high level of adoption of management practices, respectively.

Table 4 further depicts that, from the data related to the feeding management practices, it could be seen that more than half of the respondents from both the categories of cattle rearers *i.e.* 56.66 per cent of Deoni cattle rearers and 50.83 per cent of non-descriptive cattle rearers were categorized under medium level of adoption of feeding management practices of cattle. The data further also show that an equal per cent (21.67 %) of Deoni cattle rearers were having high and low level of adoption of feeding management practices, respectively. In relation to the non-descriptive cattle rearers, 25.83 per cent of them had high level and 23.34 per cent of them had low level of adoption of feeding management practices of cattle.

Further, in relation to the adoption of health management practices, it is evident from Table 4 that majority (64.16 %) of Deoni cattle rearers were adopted these practices at medium level followed by 19.17 per cent of them had high level of adoption and 16.67 per cent of them had low level of adoption of cattle health management practices. In relation to the adoption of health management practices by non-descriptive cattle

rearers it could be seen from table that more than half (59.17 %) of them were having medium level of adoption of these practices while, 22.50 per cent and 18.33 per cent of non-descriptive cattle rearers were categorized under low and high level of adoption of different cattle health management practices, respectively.

As shown in the Table 4, most (56.66 %) of Deoni cattle rearers were having medium level of adoption of miscellaneous management practices of cattle, followed by 24.17 per cent of them had high and 19.17 per cent of them low level of adoption of different miscellaneous management practices of cattle. The table further shows that, nearly two third (65.00 %) of them were adopted different miscellaneous management practices of cattle at medium level and equal percentage *i.e.* 17.50 per cent of them were having high and low level of adoption of different miscellaneous management practices, respectively.

Overall adoption :

It was revealed from Table 5 that, more than three fourth (70.00 %) of Deoni cattle rearers had medium level of overall adoption of different cattle rearing management practices while, equal percentage *i.e.* 15.00 per cent of them were categorized under high level and low level of overall adoption of different cattle rearing management practices, respectively.

In relation to the non-descriptive cattle rearers, it was observed from Table 5 that, two third (66.66 %) of them had medium level of overall adoption of different cattle management practices for cattle rearing followed by equal percentage *i.e.* 16.67 per cent of them were belonged from high and low adoption, respectively. These results are in the line with Halakatti *et al.* (2007); Meena and Sharma (2007); Mande and Thombre (2009); Singh *et al.* (2010); Salunke (2011); Ainlawar (2012); Fita and Trivedi (2012); Joshi *et al.* (2012); Chaudhary *et al.* (2013); Pawar (2013) and Mali *et al.* (2014).

The calculated 'Z' value 2.90 was significant at 0.01 per cent level of probability which indicated that the Deoni cattle rearers and non-descriptive cattle rearers were having significant difference in their overall adoption of different cattle management practices.

Adoption index :

According to adoption index, the respondents were categorized and given in Table 6 which shows that 70.00 per cent of Deoni cattle rearers were having medium level of adoption while, equal per cent (15.00 %) of them belonged to high and low category of adoption, respectively.

In context with the non-descriptive cattle rearers the data given in Table 6 show that the majority (68.33 %) of them were having medium adoption followed by

Table 5 : Distribution of respondents according to their overall adoption

Sr. No.	Category	Deoni cattle rearers (n=120)			Non-descriptive cattle rearers (n=120)			'Z' value
		Score	F	%	Score	F	%	
1.	Low	Upto 71	18	15.00	Upto 70	20	16.67	
2.	Medium	72 to 92	84	70.00	71 to 86	80	66.66	
3.	High	93 and above	18	15.00	87 and above	20	16.67	02.90**
		Total	120	100	Total	120	100	
		Mean		82.36	Mean		78.66	
		SD		11.08	SD		08.45	

** indicates significance of value at 0.01 level of probability

Table 6 : Distribution of respondents according to their adoption index

Sr. No.	Category	Deoni cattle rearers (n=120)			Non-descriptive cattle rearers (n=120)			'Z' value
		Score	F	%	Score	F	%	
1.	Low	Upto 63.46	18	15.00	Upto 62.69	20	16.67	
2.	Medium	63.47 to 83.17	84	70.00	62.70 to 77.76	82	68.33	
3.	High	83.18 and above	18	15.00	77.77 and above	18	15.00	02.90**
		Total	120	100	Total	120	100	
		Mean		73.53	Mean		70.23	
		SD		09.90	SD		07.54	

** indicates significance of value at P= 0.01 level of probability

16.67 per cent and 15.00 per cent of them belonged to low and high category of adoption, respectively. The calculated 'Z' value 02.90 was significant at 0.01 level of probability which indicates that level of adoption Deoni cattle rearers dominated over non-descriptive cattle rearers.

The distribution of the respondents on the basis of adoption index is shown in Fig. 2.
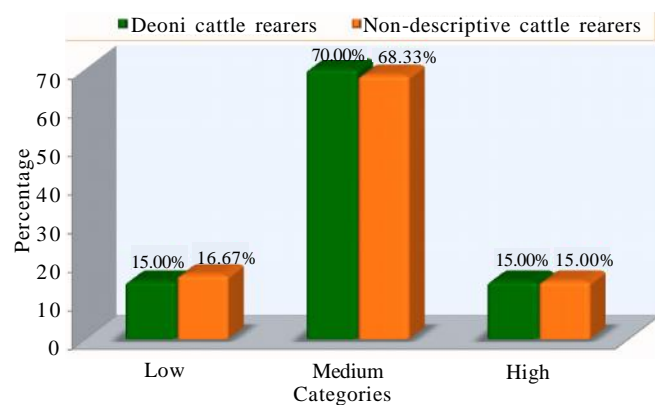

Fig. 2 : Distribution of respondents according to their adoption index

Conclusion :

From the results it is found that majority of respondents had medium level of overall knowledge about management practices of cattle rearing and more than three fourth (70.00%) of Deoni cattle rearers and two third (66.66 %) of non-descriptive cattle rearers had medium level of overall adoption of different cattle management practices for cattle rearing.

Implications :

Majority of the respondents was having medium level of knowledge and adoption of cattle management practices. Therefore, it is implied that extension workers should arrange extension training programmes like calf rallies, exhibitions, meetings and milk production competition so that cattle rearers will become aware about recommended cattle management practices and helps in adoption of these management practices.

During this study it was found that lack of knowledge about all cattle management practices, distant location of artificial insemination centers, lack of grazing lands, lack of fodder and high cost of fodder, lack of knowledge about vaccination of cattle, high cost of treatments and medicines, inadequate bank finance and lack of knowledge about insurance of livestock were major constraints in cattle rearing and management practices. Therefore, it is implied that Government, agricultural universities, veterinary universities should make plan for minimizing these different constraints at different level by starting different programmes and policies for cattle rearing development. Animal husbandry department and veterinary extension department should render better contact and administrative services to the cattle rearers in respect to artificial insemination, veterinary aids, fodder management practices and other different management practices.

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