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Food Consumption in Oromia Regional State, Ethiopia

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ABSTRACT:

The emerging interest in household dietary diversity against dietary quantity presents an opportunity to estimate household food security. Using household cross-sectional survey data from rural communities in the Western Ethiopia province of South Western Oromia specific area of Hurumu and YayuWoredas, the paper estimated determinants of rural household dietary diversity. The maim objectives of the paper, To investigate the differences in dietary diversity among diverse groups, To identify meal frequency of households. and To examine households dietary diversity in the study area. The study suggests that the study area has low dietary diversity, there is a need for integrating famine relief and prevention strategies at the regional level with the overall development strategy. The strategy should aim at self-sufficiency at the local level and dietary diversity at the household level.

Keywords:Dietary Diversity, Emerging Diversity, Hurumu, Yayu, Ethiopia

INTRODUCTION

Ethiopia has highly-diversified agro-ecological conditions which are suitable for the production of various types of fruits and vegetables, but the contribution of horticultural crops both to the diet and income of Ethiopians is insignificant. On the other side, food insecurity in Ethiopia derives directly from dependence on undiversified livelihoods based on low-input, low-output rain fed agriculture.In the 2021 Global Hunger Index, Ethiopia ranks 90th out of the 116 countries. To increase its antipoverty and nutrition benefits, agriculture needs greater support as an important public good. Even though, without stable sources of food and income, households reliant on agriculture are at risk of enhanced food insecurity and malnutrition (FAO, 2016). Despite an impressive economic recovery and agricultural productivity, there has not been corresponding reduction of under nutrition in Ethiopia. The highest child malnutrition is found in the sub-Saharan Africa countries. Maternal and child under nutrition remain significant health and development problem and challenge for the country, Ethiopia is among those countries with the highest rate of stunting in sub-Saharan Africa. The proportion of underweight children is highest in the age range of 2 to 3 years (34percent) and lowest among those under six months of age (10percent).Food insecurity is an enduring, critical challenge in the Federal Democratic Republic of Ethiopia(FAO, 2016). the NutriHAF-Africa project and capacity building project in Ethiopia explores and integrates appropriate vegetables crops into multi storey cropping systems to increase nutrition security, diversify and intensify agriculture and to reduce pressure on

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nature habitants in biodiversity hotspots (Borgemeister, 2014). Therefore, the aim of this study is to determine household dietary diversity and its determinants among rural households in Yayu and Hurumu districts, Ilu Ababor zone, South Western Oromia, northwest Ethiopia.

STATEMENT OF THE PROBLEM

Today one of the world's greatest challenges is to secure adequate food that is healthy, safe and of high quality for all is the issue of many developing countries including all parts of Ethiopia.The area is selected based on the funding organization, Diversifying Agriculture for Balanced Nutrition through Fruits and Vegetables in Multi-storey Cropping Systems (NutriHAF) Africa with the aim to increase nutrition security, diversify and intensify agriculture and thus to reduce pressure on natural habitats in biodiversity hotspots. So the scope of the study will be limited to four Kebeles-Wangegne and GabaKebeles of Hurumu District, Bondo and WaboKebeles of Yayu District, IluAbabor zone, Oromia region, South-West Ethiopia in assessing the household dietary diversity and food insecurity. Generally, this research is focused on assessment of household dietary diversity and its determinants inYayu and HurumuWoreda with emphasis on four Kebeles.

SOPE OF THE STUDY

The scope of the study limited to four Kebeles-Wangegne and GabaKebeles of Hurumu District, Bondo and WaboKebeles of Yayu District, IluAbabor zone, Oromia region, South-West Ethiopia in assessing the household dietary diversity and food insecurity. Generally, this research is focused on assessment of household dietary diversity and its determinants inYayu and HurumuWoreda with emphasis on four Kebeles.

OBJECTIVE OF THE STUDY

The specific objectives are:-

- To investigate the differences in dietary diversity among diverse groups.
- To identify meal frequency of households.
- To examine households dietary diversity in the study area.

RESEARCH DESIGN

To obtain appropriate information the study used cross-sectional research design because it is suitable for describing the existing situation, narrating facts and investigating phenomena. In order to address the stated objectives both quantitative and qualitative approaches were used. In under taking the study, two sampling techniques were used, namely purposive sampling and random sampling**.**Purposive sampling was done at selecting research site(i.e.yayoandHurumudistricts,and as this case two kebeles from each districts were purposively selected. The random sampling was used to obtain the sample in the study area.

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Finally, using the data of households from each *Kebele*Office,asimple random sample of rural household head was taken from with in each kebele.

SAMPLE SIZE

To conduct research, different sample size determination formulas can be used to determine number of informants well representing the target population. This research will be conducted on assessment of dietary diversity and food insecurity in Yayu and Hurumu Districts. Since these two Districts with four Kebeles-Wangegne and GebaKebeles(Hurumu), Bondo and Wabo (Yayu) are purposely selected by the funding organization (NutriHAF Africa), the researcher was tried to determine and select individual households' from each Kebeles through which 1,646 of four Kebele households were considered as the target population.

Finally, the sample size from the two districts contains four study Kebeles through whicheach district contains two kebeles. Hence, the sampled households were determined based on Kebele zones, sex of the household heads and wealth rank of the households were allocated based on the proportion to thier populationsize.

In general, the sample size selected from the targeted population was **143** households from the four Kebeles of the Districts. The following table 1 shows the summary report for sample frames and sample size in detail.

Table 1.Sample Size determined

Kebele	Sex of heads		Wealth Ranks			
	Male	**Female**	**Better Off**	**Middle income**	**Poor**	**Total**
Wangegne	28	5	6	12	15	33
Gaba	32	9	10	20	11	41
Wabo	15	5	2	11	7	20
Bondo	35	14	4	27	18	49
Total	**110**	**33**	**22**	**70**	**51**	**143**

Source: calculated from targeted population

Selection of household respondents from each Kebeles were made through simple random sampling from all rural households as it is assumed that there is no significant difference among the households with regard to the extension methods. Then, to achieve objective of the study, enumerators were interviewed the respondents in individual interviews the respondents selected from each Kebeles. To evaluate and test the role of government and nongovernmental organizations are playing in ensuring dietary diversity, interviews was made with different concerned officeheads, agricultural Development Agents and health sector experts.

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COLLECTION OF DATA

The data required for this study was obtained from both primary and secondary sources. The primary data was collected through questionnaire, interview, key interview and field observation. The secondary data was collected from published and unpublished documents. This includes, CSA, Government and Non Governmental (NGO) reports, different books, and internet. In addition, the data was collected from Woredas women's office administration, Woredas Agriculture office and Administration office.

DATA ANALYSIS

The data analysis results shows that most (76.92percent) of respondents are male and found in the average age 31-60 years old with min=21 and max=86 years old. Besides, majorities (73.43percent) of the respondents are married and large numbers (56.64) of them are orthodox. Meanwhile, the mean economic status of the household heads was 0.4895105 and 0.3566434 with an average deviation of 0.501647 and 0.480692 for middle income and poor households respectively. Since the minimum and maximum value deviates by 1 indicating high variability among the income of the households. Furthermore, the main occupation of households was they cultivate their own land, about 98.6percent.At average each household has 5 members and there is also a household that have 13 members.

GENERAL CHARACTERISTICS OF HOUSEHOLDS

The general household characteristics show that, married people tend to consume a greater variety of food, because the responsibility for other family members leads to a wider variety of dietary items in the household (Liu *et al*., 2014).

Table:2 Demographic Characteristics of the Respondents (categorical variables)

Variable of Interest	Category	Freq.	Percent
Sex of household head	Female	33	23.08
	Male	110	76.92
Marital status of household head	Married	105	73.43
	Single	2	1.4
	Divorced	16	11.19
	Widowed	20	13.99
Religion of the household head	Orthodox	81	56.64
	Muslim	25	17.48
	Protestant	37	25.87
Kebele of the household head	Wangegne	33	23.08
	Gaba	41	28.67

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	Wabo	20	13.99
	Bondo	49	34.27
Occupation of the Households	Cultivate own land	141	98.6
	Herding	1	0.7
	Others	1	0.7
Economic status of the household	better off	22	15.38
	middle income	70	48.95
	poor	51	35.66
Social & institutional membership	Edir	125	87.41
	Senbete	41	28.67
	Membership/cooperatives	65	45.45
	FTC training	104	72.73
Total		**143**	**100.00**

Source:Field Survey

Table 2 above results shows that from 143 sampled households 76.92percent were male headed and the remaining 23.08percent were female headed. A further analysis of the marital status of the household head was also done. As reported by the households, greater part of them have married, 105 (73.43percent) while the remaining were followed by those headed by widows 20 (13.99percent), divorced 16 (11.19percent), and single 2 (1.4percent). This range may basically show a general trend of marital status in the study area, with vulnerability cutting across all categories. Single headed households are orphans who could have lost both parents may be as a result of the HIV/AIDS pandemic.

Similarly, the results show that the most of households are engaged in agricultural activities. Accordingly, 98.6percent of the household head were cultivate own land that is they are mostly involved in agriculture; like producing vegetables, planting coffee, planting chat, mixed agriculture including livestock to mention a few as their income generating activities. Very few numbers (0.7percent) of households survive from herding and other activities. Most households were middle income, that is 48.95percent and are those that have high dietary diversity than that of better off and poor households. Followed by poor households which is 35.66percent and there is only about 15.39percent of better income households in the study area.

From table.3 above, the total of 143 households that are participated in the study, majority of them are a membership of Edir. This output predicts that about 72.73percent of the respondents are a membership of Food Training Course (FTC) training while the rest 45.45percentand 28.67percent are the cooperative membership of farmers cooperatives/membership, respectively.

AGE OF THE HOUSEHOLD HEAD, EDUCATIONAL STATUS AND MEAL FREQUENCY OF THE HOUSEHOLDS:

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In the study area, the age distributions among household heads is an important aspect as it determines one's knowledge and experience in crop production, livestock production and other off-farm activities thus it influences household diety diversity. The results shows that age of households' ranges from 21 years to 86 years. Majority of the households were adults headed with 31- 60 years old, these account for 69.93percent and 30.07percent of the households were headed by old people those who are above 60 years and youths those who are less than 30 years(see appendix-B).

Different studies show that the age distribution of the households on their dietary diversity as follows. Clausen *et al*. (2005) found that older adults in Botswana consume a low variety of food, with inadequate dairy products, fruits, and vegetables (35.2percent, 59.3percent, and 22.4percent) respectively. Another cross-sectional study among elderly respondents in Sharpeville, South Africa comparing a low mean dietary diversity score (3.41 +/- 1.34) and food variety score (4.77 +/- 2.2) with poverty parameters confirmed household food insecurity (Oldewage-Theron and Kruger, 2008). However, in this study area the age of households has no significant effect on the dietary diversity (see appendix-C).

Table .3 Demographic characteristics of the household (continuous variables)

Variable of Interest	Continuous	Freq.	Percent
Educationallevel ofrespondent	2	2	2.9
	3	7	10.14
	4	11	15.94
	5	10	14.49
	6	9	13.04
	7	7	10.14
	8	8	11.59
	9	5	7.25
	10	10	14.49
Meal frequency every 24 hour	2	8	6.11
	3	98	74.81
	4	20	15.27
	5	5	3.87
Total		**1483**	**100.00**

Source: Source:Field Survey

As indicated in the above table.3, among the total household heads 49.65 percent are not ability to write and read were as 71 (49.65percent) have ability to write and read are 72 (50.35percent). Most of the household heads have attained secondary education (81.18percent) and 18.82percent have attained primary education.Most households were food insecure despite their level of education this might be a sign of crop failure, lack of employment opportunities due to economic instability.

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Families with greater incomes and resources tend to have more diverse diets, but they are also likely to have better access to health care and better environmental conditions. Evidence from a multi-country analysis suggests that household level Dietary Diversity (DD) is strongly associated with household per capita income and energy availability, suggesting that DD could be a useful indicator of food security.Dietary diversity was shown to be strongly associated with household socioeconomic status (Hulshof et al., 2003). Households, especially those are in rural areas, own farms where they can grow vegetables and raise livestock to replace or supplement purchased food (Liu *et al*., 2014).

Most households in the study area were middle income, which is about 48.95percent.Followed by poor households which is 35.66percent and there is small number of better income households in the study area that is about 15.38percent. The meal frequency of the household was averagely three that is the large number of households was around 74.81percent consume three times in a day. However, very few number of households around 3.82percent consume five times a day. Most of the households have less meal frequency which is less or equal to four.

As a result household that have more meal frequency has high dietary diversity. The adoption of the croping dietary diversity shows that the households cannot survive from their own farm production. Their yields are disrupted by changes in seasonal patterns and at times when they achieve better yields they sell the produce to supply for school fees and other costs incurred in a household. Approximately, 81.12percent of them had no participation in nutritional training. And also about 81.82percent and 53.15percent of the households were not received any nutritional message and had no access to irrigation respectively. further, depicts that the highest percentage about 74.83percent of the households had no hunger season and about 46.85percent of households were had access to irrigation. Among common reasons to improve dietary diversity, the participants of the study replied that they were use access to irrigation about 46.85percent, were use access to creditabout 45.45percent, and wereparticipate in nutritional training about 18.88percent. Thus, these figure shows that majority of the households had dietary diversity because they prefer to irrigation for their dietary diversity (appendix A).

HOUSEHOLDS CHARACTERISTICS BY THEIR MEAL FREQUENCY:

The meal frequency of the one household is different from the other by their economic status, education, sex accordingly.

Table.4: Economic status, Sex and Education of the Household and their meal frequency

Variable of Interest	Category	meal frequency every 24 hour				
		2	3	4	5	Total

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Economicstatus of the household	better off	1	17	0	0	18
	middle income	2	48	15	3	68
	Poor	5	33	5	2	45
Sex of household	Female	3	24	3	2	32
	Male	5	74	17	3	99
Household ability to read and write	No	5	52	6	3	66
	Yes	3	46	14	2	65
	Hurumu	4	49	7	3	63
	Yayu	4	49	13	2	68

Source: Field Survey

As indicated in Table.4 above, out of 32 sampled female households, about 84.38percent have three and less than three meal frequency and only five 15.62percent female households have more than four meal frequency. While, among sampled male households, about 79.79percent of them have three and less than three meal frequency and only 20.21percent of male households have more than four meal frequency. Thus, the likelihood of diet diversity is high for males compared to females.

Among the households not able to read and write 86.36percent of them have meal frequency three and less than three. Out of 66 households those who are not able to read, 13.67percent of them were had more than four meal frequency. From the sampled households those who had able to read and write 75.38percent of them have less than three meal frequency from the studied area (table.4). It is found from data the likelihood of meal frequency is high for households those who read and write compared to those who couldn't able to read and write.

HOUSEHOLDS CHARACTERISTICS BY DIETARY DIVERSITY:

Economic status of people in two districts was more middle income group. Out of 68 peoples in two districts 59 (86.76percent) of them have high dietary diversity. The table further depicts that diety diversity is less for better off, which was only around 50percent. The likelihood of diety diversity is high for middle income compared with other economic status.

Table 5: Economic status, Sex, Education and Residence of the Household and their Dietary Diversity Group.

Variable of Interest	Category	Household diety diversity grouped into 2					
		Low diety		High diet		Total	
		N	percent	n	percent	(n=131)	percent
Economic status and household dietary diversity	better off	9	50	9	50	18	100
	middle income	9	13.24	59	86.76	68	100
	Poor	13	28.89	32	71.11	45	100

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Sex of household and dietary diversity	Female	10	31.25	22	68.75	32	100
	Male	21	21.21	78	78.79	99	100
Household ability to read and write	No	12	18.18	54	81.82	66	100
	Yes	19	29.23	46	70.77	65	100
Residences Kebele	Wangegne	8	32.00	17	68.00	25	100
	Gaba	13	34.21	25	65.79	38	100
	Wabo	3	15.00	17	85.00	20	100
	Bondo	7	64.58	41	85.42	48	100

Source: Source:Field Survey

As indicated in Table 5 above, out of 32 sampled female households, about 22 (68.75percent) have high dietary diversity. While, among 99 sampled male households, about 78(78.79percent) of them have high dietary diversity. It is disheartening to note thatthe likelihood of diet diversity is high for males compared to females.

Among the households not able to read and write 54 (81.82percent) of them have high diety diversity. From the sampled households those who had ablity to read and write 46 (70.77percent) of them have high diety diversity from the studied area. The study inferred that likelihood of diet diversity is high for households those who couldn't read and write compared to those who had able to read and write.

Among the studied area Kebeles, Wabo and Bondo have relatively higher likelihood of high diety diversity with percentages values of about 85.00percent and 85.42percent respectively. The overall diety diversity is less in Gaba Kebele; it is only about 65.79percent. In fact, out of 25 households of Wangegne residents, 17 (68percent) of them reported that they have high diety diversity.

HOUSEHOLD'S DIETARY DIVERSITY SCORE OF YAYU AND HURUMU:

Household dietary diversity refers to the number of food groups consumed by household members over a 24-hour (hr)period. Dietary diversity scores are created by summing either the number of individual foods or the food groups consumed over a reference period (FAO, 2008). Low household dietary diversity score: When households consumed less than or equal to three food groups within 24 hr before the survey. Medium householddietary diversity score: When households consumed four to six food groups within 24hr before the survey. High household dietary diversity score: When households consumed seven or more food groups within 24hr before the survey. Adequate household dietary diversity: When households consumed at least four or above food groups within 24hr before the survey. Inadequate household dietary diversity: When households consumed less than four food groups within 24hr before the survey (FAO, 2011).

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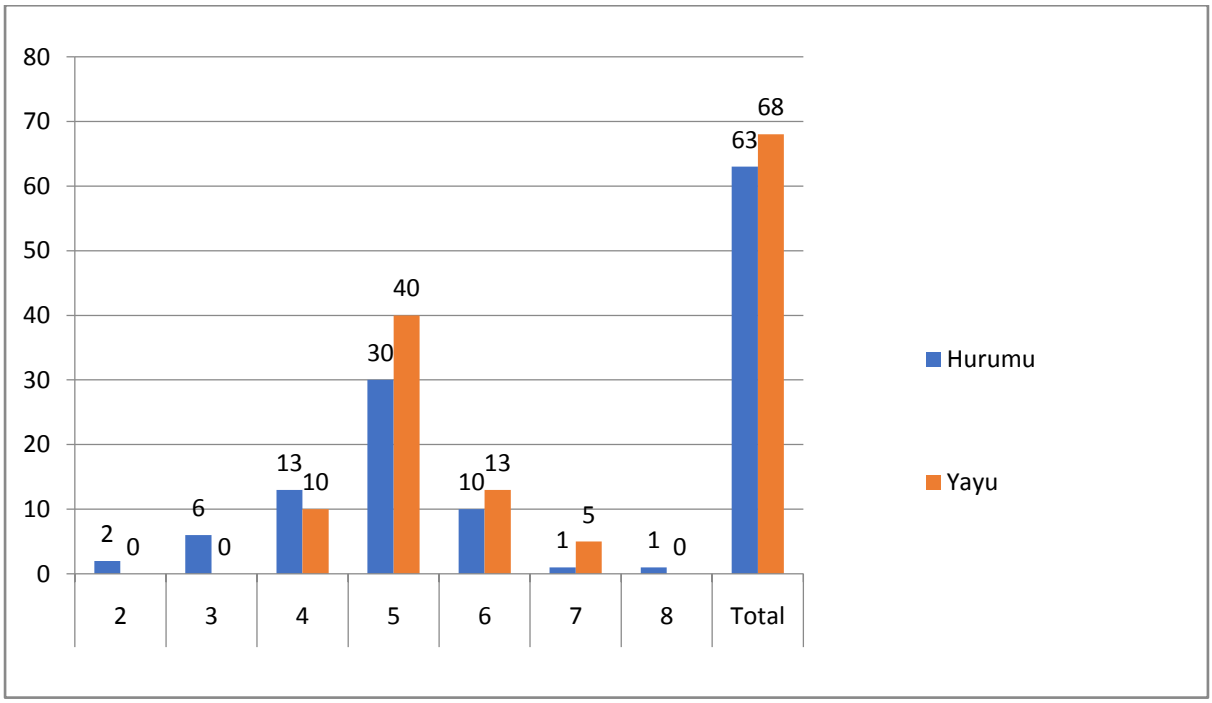
Table.6 Household's Dietary Diversity Score of Yayu and Hurumu.

Residenceworeda	Household dietary diversity score							
Woreda	2	3	4	5	6	7	8	Total
Hurumu	2	6	13	30	10	1	1	63
Yayu	0	0	10	40	13	5	0	68
Total	2	6	23	70	23	6	1	131

Source: Field Survey

This community based cross- sectional study assessed household dietary diversity and determinants of households' dietary diversity in south western part of Oromia, Hurumu and Yayu. The major goal of dietary diversity is to promote households to consume diversified diets rather than consuming monotonous diets throughout 24 hr. The results of this study showed that low and high household dietary diversity scores in diety diversity were found to be 80.95percent and 19.05percent respectively.

Figure: 1. Household dietary diversity of the woredas



Source: Field Survey

From the above column chart household in Yayu were had more dietary diversity than those households living in the Hurumu districts which indicates that 68 is greater than 63.(see figure:3)

STATISTICAL RESULTS OF SELECTED QUANTITATIVE VARIABLES:

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The following table presents the central values (mean), dispersion measures (standard deviation), the minimum and the maximum values and number of observations computed for continuous variables.

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Table.7 Summary Statistics of Selected Quantitative Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	143	46.87413	14.88352	21	86
Experience	143	26.04196	15.1271	1	65
Meal frequency	131	3.167939	0.58379	2	5
Woreda of the household	143	1.482517	0.501451	1	2

Source: Field Survey

From the above table.7 meal frequencies of the household head is 3.167939 year with standard deviation of 0.58379year. This standard deviation shows high variability in meal frequency among households. There was a household those who have farming experience 65 years and there are households that have 1 year.

A total of 143 household are average ages of 47.96 years old between min.21 and max. 86 years old were extracted from set of households in study area. At, average the age of each household differs by 10 years, but the minimum and maximum value deviated by 65 years. The mean cooperation of the household heads that are participated in the study area was 0.4545455 with an average deviation of 0.49968. Since the minimum and maximum value deviates by 1 indicating high variability among the income of the households. The average measure of the households participated in irrigation of the study was computed to be 0.1888112percent while its standard deviation is 0.392734percent. Here the standard deviation is even more than the mean. At average each household has 5 members. There is a household that have 13 members.

MAJOR CONCERNS AND SUGGESTIONS:

As the results of the study indicate that the study area has low dietary diversity, there is a need for integrating famine relief and prevention strategies at the regional level with the overall development strategy. The strategy should aim at self-sufficiency at the local level and dietary diversity at the household level by incorporating the following recommendations:

- Empowermentof men, increasing frequency of eatingamong family members andincreasing participation of the households in social cooperation were recommended to sustain and improve household dietary diversity.
- The finding of this study revealed that, education attainment of the household is negatively influence both household food dietary diversity. It is, therefore, important that more attention should be given to the education sector to improve their food dietary diversity.
- According to the result, household heads who are members of the social cooperatives are found to be more likely to have high diety diversity compared to non-members. Hence encouraging farmers to be member of the cooperative unions is meaningful.

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- The result indicates that farming experience decreases household diety diversity. Therefore, revisiting mechanisms to encourage farmers with their experience to improve their dietary diversity. This could be done via the Farmers Field School (FFS) method by giving some advices to them

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