



## The Analysis of Feeding Cost at (Dairy farm) Gowshala Banaras Hindu University

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Received: 15.05.2020 | Revised: 19.06.2020 | Accepted: 25.06.2020

### ABSTRACT

The secondary data were collected from the year 2012 to 2017 in farm inventory of dairy farm Banaras Hindu University. The study revealed that the feeding cost is highest at the dairy farm it accounts more than 75% of total variable cost. Second highest cost at the dairy farm was labour cost and then the other cost. The highest feeding cost at the gowshala (dairy farm) in the year 2016 was 10429490 (Rs). And lowest in the year 2013 was 7479100.

**Keyword:** Dairy farm, Total variable cost, Labour cost, Feeding cost.

### INTRODUCTION

A balanced ration is one which supplies all the nutrients necessary to nourish the animal properly during twenty-four hour period. It depends upon the kind of animal and the purpose for which animal is kept. With a balanced ration, an animal can get the best out of all the constituents present in their food. If the calves are not fed properly, they show deficiency symptoms such as retarded growth, poor production, delay maturity, and disturbance in reproduction efficiency. Thus a balanced ration is more purposeful and beneficial. Proper feeding is the basis of

successful dairy operation since feed cost accounts for over half of the total cost of milk production i.e. over 60 percent. To attain optimum performance a balanced ration is essential. A shortage or imbalance in the supply of energy, protein, vitamins or minerals will subject to the cow to nutritional stress resulting in metabolic disorder or decrease in milk production. Nutrients requirement depends largely upon milk yield, composition and cow weight with milk production having greater influence in the high producing dairy cow.

**Cite this article:** Jakhar, B., Kumar, D., Pandey, R.K., Kumari, S., Yadav, V.L., & Kumar, V. (2020). The Analysis of Feeding Cost at (Dairy farm) Gowshala Banaras Hindu University, *Ind. J. Pure App. Biosci.* 8(3), 567-573. doi: <http://dx.doi.org/10.18782/2582-2845.8184>

## MATERIALS AND METHODS

### Characteristics and Ownership of Concerned Dairy

The Dairy Farm, Institute of Agriculture Science, Banaras Hindu University, is a research and educational farms where various categories of animals are kept. The herd maintained in a line so that they provide a much relevant idea about the dairy farming to the student about feeding, breeding, and other managerial practices that how dairy units could run under the scientific condition to get maximum output.

### Management Practice at the Concerned Unit

Considering the role of routine management practices in influencing production and thus accuracy of observations, it was considered worthwhile to state at least the salient management practices carried out daily at the dairy for the upkeep of animals and at the meteorological observatory for taking and recording of observations during the period covered under this study.

### Routine management practice at Dairy farm

#### Feeding

All animals were maintained under identical conditions. Rations were given to the cows according to their body weight and milk production. While the roughages were given adlib, the concentrates were given in regulated doses according to a ration schedule. Concentrate mixture contains 16-18 percent DCP and 75-78 percent TDN and was either procured from compound feed manufacturing companies but during the period under reference they were prepared out of the ingredient procured on the open market. This mixture usually contained Linseed/ground nut/rapeseed cake(s), ground barley, arhar or gram chuni and wheat or Rice bran mixed in the ratio of; oil cakes 40 percent chunies 25 percent, brans 25 percent and 10 percent molasses. Amongst dry roughages wheat bhusa constitutes the major share of fodder throughout the year. Green forage supplies are rather erratic. Only a limited quantity of any one of the other green forage, depending on its

availability, is made available. This too varies from season to season. While during summers and the rainy season the management makes efforts to raise Napier grass. Jawar Chari, N.P. Chari, green maize and cowpea, during the winters berseem and oats predominate constituting the bulk of green forage. Besides, the animals are provided with liberal quantities of common salt and trace mineral mixtures as per recommendations. Most of the ration is provided to the animals through stall feeding. The animals however, one allowed grazing on scanty grass covers during monsoon and thereafter. The places of a called grazing are not any defined grazing grounds but mostly comprise campus playfields or roadsides where they hardly nibble vegetal cover except during the rainy season when the grass is more abundant and luxuriant. All efforts are being made by the management to provide the animals with balanced feeds. Non- abundance and non- sustained supply of greens is a big bottleneck. Adequate supply of fresh, cool drinking water is available to the animals ad libitum with access at all times throughout the year.

#### Purchase of concentrate feeds

The concentrate is either procured from the compound feed manufacturing companies or prepared locally after procuring needs full quantities of oil cakes linseed, Mustard, Groundnut and chuni (Arhar and gram chuni) and wheat bran etc.

#### Housing system followed

Housing system of dairy animals at the Banaras Hindu University is somewhat improved and scientifically planned. The sheds are covered by an asbestos sheet on both the sides with central rafts with half walls all round. At the dairy farm, Institute of Agriculture Sciences, Banaras Hindu University, however, scant facilities i.e. fans, cooler etc. do exist.

#### Labour Development Practices

The labour deployed at the Dairy Farm, Institute of Agricultural Sciences, Banaras Hindu University, is characterized as permanent and temporary. Women are given due employment as labourers on the farms

occasionally mainly for grazing the animals. All efforts are made to realize the skill of laborers. Yet due to exigencies created at times interchanges of the labour force from one job to another become a necessity. Nevertheless, certain jobs viz.-milking, feeding etc. are allotted to persons fully conversant with the methods of feeding and milking. In most of the month, work allotment is done in the morning around 6.00 A.M. for the entire day. It may, however, modify as per needs arising out of the intricate situation.

During monsoon season it was noted that the average number of labourers developed increase. This is due to accomplish various additional works viz. green fodder harvesting, grazing, sowing and for exercising extra sanitary precaution etc. during the study it was observed that there is no specific type of training facilities given to the labour regarding the pattern and system of working. Most of the labourers are employed afresh and they learn by the dictates of senior labour through actual practices.

#### Maintenance of Various Records

All the cows and buffaloes at the dairy had their identification marks viz. the brand numbers of which were used for purpose of keeping records pertaining to these. Milk yield from each time first in the daily milk sheet and then entered in the milk record register against the brand number of cow/buffalo and total of

the day's milk yield from cows buffaloes were computed and entered from the aforesaid record. After milking and recording both during morning and evening the milk is supplied to campus customers; whereas can supply is made by milkers against coupon system at the BHU campus. It is obvious that the system of management followed at the dairy were standard based on scientific pattern.

#### Collection of Data

The data were collected are based on the authentic records maintained at the Gowshala, (Dairy Farm), Institute of Agriculture Science, Banaras Hindu University. The month- wise data were collected comprised of various parameters viz. monthly dairy herd statistics, quantity and quality of feeds and their cost, type of concentrate mixture including their brand name with cost, labour development practices and their remuneration, milk performance and the total milk production during investigation some information were also recorded with regards to the management practice followed at the dairy equipments, rearing and calves, grazing and paddock facilities method of breeding. The data were collected by manual by a direct visit to the farm.

#### Analysis of data

The data were analyzed using the statistical methods and mathematical operation.

**Table: Composition of feed ingredients**

Sr. No.	Name of Ingredient	Dry Matter (Percent)	Digestible Crude Protein (Percent)	Total Digestible Nutrients (Percent)
1	Masoor chuni	90	4.00	44.00
2	Chokar	90	9.00	65.00
3	Jowar	90	6.50	68.00
4	Maize	90	6.00	85.00
5	Barley	90	7.00	74.00
6	Mustard cake	90	26.00	80.00
7	Bajra	90	4.50	70.00
8	Cottonseed cake	90	18.00	72.00
9	Linseed cake	90	30.50	80.00
10	Rice bran (kanna)	90	7.00	65.00
11	Rice straw	90	0.09	45.00
12	Groundnut cake	90	42.00	80.00

## RESULT AND DISCUSSION

### The analysis of feeds and feeding at Gowshala, (Dairy farm)

#### Feeding Cost Analysis

The feeding cost of the Dairy farm was highest among all another cost second highest was labor cost and then the electricity and veterinary charges. The feeding cost was highest in the year 2016 and lowest in the year 2013. Variable costs are costs that occur when production is made and they increase or decrease depending upon the production volume. Fixed costs are costs that do not change with respect to the production volume or costs that occur whether production is made or not (Inan, 1998). It is clear from table 9 in the total variable costs the highest percentage of variable costs is accounted by feeding cots that is the (85%) of total cost in the year 2012 and lowest in the year 2017 was (63.64%). In other studies conducted in region of Turkey the proportion of feed cost in total variable cost was 79.76% in Tekirdag (Inan, 1989), 86.60% in Kayseri (Sahin, 2001) and 85.60% in Adana (Gul, 1998). Akturk et al., (2010), and Tatlidil (2002) reported that the highest proportion among the variable costs belongs to the feed (71.34%). Since feed costs accounts for the highest proportion of variable costs, a way of decreasing feed costs. Good quality and cheap roughage and adequate ration should be incorporated into cattle feeding. A study conducted in Switzerland that the

Feeding of roughage to cows was more advantageous in terms of feed costs (Hilfiker, 1996). That the labor efficiency is highest in the year 2012 and lower in the year 2017 at the dairy farm of Institute of Agriculture Science, Banaras Hindu University.

Table 1: shows the feeding cost in the 2012. The total feeding costs was 7653737.5 in which highest feeding cost in the month of March was 760142.5 and lowest in the month of August is 483002.5. Table 2: shows the feeding cost in the year 2013. The total feeding cost was 7479100 in which highest in the month of April was 780900 and lowest in the month of October was 266885. Table 3: shows the feeding costs in the year 2014. The total feeding cost was 9226282 in which the highest feeding cost in the month of January was 898200 and lowest in the month of February was 437999. Table 4: shows the feeding cost in the year 2015. The total feeding cost was 8610678 in which highest in the month of July was 885680 and lowest in the month of March was 535490. Table 5: shows the feeding cost in the year 2016. The total feeding cost was 10429490 in which highest in the month of March was 1193915 and lowest in the month of December was 706105. Table 6: shows the feeding cost in the year 2017. The total feeding cost was 8732610 in which highest in the month of November was 1118250 and lowest in the month of May was 413000.

**Table 1: Feed ingredients and feeding cost of farm animal during 2012**

Ingredients	January	February	March	April	May	June	July	August	September	October	November	December	Total quantity (Qt)	Rate (Rs/Qt)	Total cost Rs.
Masoor chuni (Qt)	65	55.5	55.8	30	30.4	48	49	46	40	42	40	41	542.7	1250	678375
Chokar (Qt)	139	56	36.5	42	55	54	62	62	77	86	84	63	816.5	1200	979800
Maize (Qt)	93	77	93	75	77	67	76	41	35	54	67.5	70	825.5	1300	1073150
Barley (Qt)	55	56	69	72	74	45	46.5	14	40	0	0	0	471.5	1450	683675
Mustard cake (Qt)	55	28	48	30	31	30	26	0	0	29	0	0	277	1500	415500
Bajrat (Qt)	49	45	49	44	48	0	0	0	0	0	0	0	235	1500	352500
Wheat straw (Qt)	263	238	263	255	263	240	268	248	240	248	240	248	3014	410	1235740
Salt (Qt)	7.75	7	7.75	7.5	7.75	7.5	7.75	7.75	7.5	7.75	7.5	7.75	91.25	350	31937.5
Gud (Qt)	6	10	13	18	23	18	18	18	24	20	12	12	192	3000	576000
Rice Straw (Qt)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arhar chuni (Qt)	46.5	55	60	36	37.5	30	31	22.6	21	36	35	37	447.6	1350	604260
Cotton cake (Qt)	23	28	31	42	31	30	31	8	21	20	30	49	344	1600	550400
Linseed cake (Qt)	0	0	0	6	6	5.4	6	6	0	0	0	0	29.4	3000	88200
Khasari chuni (Qt)	0	0	0	0	0	0	0	34	54	65	36	37	226	1700	384200
Total cost of feeds (Rs)	733242.5	676455	760142.5	695775	727667.5	581875	616917.5	483002.5	572675	624892.5	532025	549492.50	7512.45		7653737.5

**Table 2: Feed ingredients and feeding cost of farm animal during 2013.**

Ingredient	January	February	March	April	March	Jun	July	August	September	October	November	December	Total quantity (Qt)	Rate Rs/Qt	Total cost
Masoor chuni(Qt)	40	28.6	36	39	43.5	34.6	62	62	60	36	43	111	595.7	1550	923335
Arhar chuni(Qt)	37	35	51.5	45	46.5	33.6	0	0	0	0	0	0	248.6	1350	335610
Chokar(Qt)	0	82	100	105	116	120	103	99	96	0	0	0	821	1500	1231500
Maize(Qt)	69.5	59.5	108	105	66	25	42	93	90	33	161	217	1069	1450	1550050
Barley(Qt)	0	0	30	45	46.5	61	36	46	39	45	35	65	448.5	1300	583050
Gud(Qt)	12	15	10	15	15.5	9.5	0	0	0	0	0	0	77	3400	261800
Mustard cake (Qt)	18	26	21	30	31	92	124	124	103	0	44	62	675	1650	1113750
Wheat straw(Qt)	253	238	248	240	248	240	248	248	246	246	180	186	2821	410	1156610
Salt(Qt)	7.75	7	7.75	7.5	7.75	7.5	7.75	7.75	7.5	7.75	7.5	7.75	91.25	500	45625
Bajra Seed(Qt)	6.5	4.8	6.6	15	4	0	0	0	0	0	0	0	36.9	1300	47970
Jawar(Qt)	0	0	24	38	14	0	0	0	0	0	0	0	76	1350	102600
Linseed cake(Qt)	5.4	5.6	6.2	6	6.2	6	3.6	3.4	0	0	0	0	42.4	3000	127200
Total cost of feeds(Rs)	415480	518875	704710	780900	712455	698790	679255	759605	692760	266885	495750	753635	7002.35		7479100

**Table 3: Feed ingredients and feeding cost of farm animal during 2014**

Ingredient	January	February	March	April	May	June	July	August	September	October	November	December	Total Quantity (Qt)	Rate (Rs/Qt)	Total cost(Rs)
Masoor chuni(Qt)	60	34	72	72	56	32	28	29	57	60	75	64	639	1600	1022400
Maize(Qt)	78	25	83	99	102	110	117	117	114	123	142	151	1261	1550	1954550
Gud(Qt)	15	14	12	10	14	9.6	12.4	14	9.5	12.5	10	12.5	145.5	3500	509250
Mustard cake(Qt)	62	56	28	0	68	62	64	54	63	62	63	62	644	1950	1255800
Barley(Qt)	0	21	2.7	49	72	65	75	21	19	31	11	0	366.7	1500	550050
Bajra(Qt)	24	6	50	60	40	0	0	0	38	0	0	17	235	1400	329000
Chokar(Qt)	60	0	93	90	93	98	115	115	111	91	84	95	1045	1500	1567500
Wheat straw(Qt)	175	196	310	169	163	345	356	356.5	345	356.5	245	265	3282	550	1805100
Salt(Qt)	5.5	7	7.75	7	5	7.5	7.75	7.75	6.6	7	6.5	7	82.35	600	49410
Rice straw(Qt)	0	99	210	140	73	0	0	0	0	0	0	0	522	351	183222
Total cost of feeds(Rs)	898200	437999	802860	742440	851073	814950	879800	786775	865910	834575	779100	817350	8222.55		9226282

**Table 4: Feed ingredients and feeding cost of farm animal during 2015**

Ingredients	January	February	March	April	May	June	July	August	September	October	November	December	Total quantity (Qt)	Rate Rs/Qt	Total Cost Rs
Masoor chuni(Qt)	31	28	40	19.8	68.2	66	68.2	19.8	0	0	0	15.6	356.6	1800	641880
Arhar chuni(Qt)	60	52	68	25	0	0	0	15.4	66	40.6	66	6	399	1650	658350
Barley(Qt)	0	0	0	0	0	66	80.6	50	90	93	57.9	5.78	443.28	1600	709248
Chokar(Qt)	80	72	80	78	74.4	72	74.4	89.5	60	62	47	94	883.3	1600	1413280
Maize(Qt)	139	126	140	135	139.5	76.5	72.7	78.88	69.6	71.92	71.9	67.5	1188.5	1650	1961025
Mustard cake(Qt)	62	0	0	16.9	50	75	68.2	6.8	0	0	0	62	340.9	2000	681800
Gud(Qt)	12.5	11.5	12.4	1.6	6.8	12	15.5	15.7	0	3	15	3	109	3550	386950
Salt(Qt)	7.75	6	7	4.4	7.4	7.2	7.4	7.5	7.75	6	9.25	8.5	86.15	700	60305
Wheat straw(Qt)	160	155	145	104	248	240	248	248	240	248	240	256	2532	600	1519200
Cotton cake(Qt)	0	0	0	0	0	0	17.7	26.3	25.5	24.4	35.6	46.5	176	2800	492800
Bajra(Qt)	19	17	19	4.2	0	0	0	0	0	0	0	0	59.2	1450	85840
Total cost of feeds(Rs)	809500	621975	706670	535490	750095	807465	885680	711427	684565	665628	698780	733403	6573.93		8610678

**Table 5: Feed ingredients and feeding cost of farm animal during 2016**

Ingredients	January	February	March	April	May	June	July	August	September	October	November	December	Total Quantity (Qt)	Rate Rs/Qt	Total cost Rs
Masoor chuni(Qt)	80.6	71.3	37.5	0	0	0	0	17.5	75	30	75	2.5	389.4	1850	720390
Arhar chuni(Qt)	0	0	68.2	31.8	44	47	23	0	0	0	0	0	214	1700	363800
Barley(Qt)	0	0	78	22	0	0	0	21	90	89	20	55	375	1700	637500
Chokar(Qt)	84	87	93	90	93	90	93	93	90	93	90	93	1089	1650	1796850
Maize(Qt)	60	72.5	77.5	75	77.5	75	77.5	77.5	75	77.5	75	77.5	897.5	1600	1436000
Mustard cake(Qt)	62	58	18	0	42	60	62	36	0	0	0	0	338	2000	676000
Gud(Qt)	10.6	17.4	18.6	18	18.6	18	5.8	0	12	15.5	15	12.5	162	3700	599400
Salt(Qt)	9.3	11.6	12.4	12	12	12	12	12.4	12	12.4	12	12.4	142.5	700	99750
Wheat straw(Qt)	144	104	85.5	188	294	300	310	310	300	341	360	372	3108.5	600	1865100
Cotton Cake(Qt)	46.5	43.5	46.5	29.5	16.5	45	46.5	46.5	45	0	0	0	365.5	2800	1023400
Khesari chuni(Qt)	0	0	42	56	0	0	0	0	0	0	0	0	98	2500	245000
Rice straw(Qt)	0	30	18	180	104	0	0	0	0	0	0	0	332	400	132800
Bajra(Qt)	84	101.5	108.5	105	85	0	0	0	0	0	0	35	519	1500	778500
Jawar(Qt)	0	0	52	48	0	0	0	0	0	0	0	0	100	550	55000
Total cost of feeds(Rs)	896040	928405	1193915	1026260	905170	849400	786610	742405	919050	755527	721150	706105	8130.4		10429490

**Table 6: Feed ingredients and feeding cost of farm animal during 2017**

Ingredient	January	February	March	April	May	June	July	August	September	October	November	December	Total quantity (Qt)	Rate Rs/Qt	Total cost Rs
Arhar chuni (Qt)	0	0	68.2	31.8	44	47	23	52.8	66	89	90	93	604.8	2200	1330560
Barley(Qt)	0	0	0	0		0	51	93	90	93	81	0	408	1750	714000
Chokar(Qt)	0	0	0	0	0	0	0	0	0	66	90	44	200	1800	360000
Maize(Qt)	46.5	43	77.5	61	0	0	37.5	77	75	91	90	90	688.5	1800	1239300
Mustard cake(Qt)	0	0	74	26	0	19.2	7.8	57	72	95	90	93	534	2250	1201500
Gud(Qt)	15.5	14	15.5	0	0	0	0	0	0	0	0	0	45	4050	182250
Salt(Qt)	12.4	11.2	12.4	12	12.4	4.5	4.2	9.2	0	0	0	0	78.3	750	58725
Wheat straw(Qt)	372	268	0	0	108	180	372	372	360	372	360	372	3136	700	2195200
Cotton cake(Qt)	0	0	54	45	0	0	0	0	0	0	0	0	99	3000	297000
Bajrat(Qt)	108	56.5	0	0	0	0	0	0	0	0	0	0	164.5	1550	254975
Rice straw(Qt)	0	140	514	498	514	332	0	0	0	0	0	0	1998	450	899100
Total cost of feeds(Rs)	563575	480675	921415	606360	413000	425375	488450	813060	851700	1115300	1118250	915450	7956.1		8732610

### SUMMARY AND CONCLUSIONS

The feeding cost is highest at the dairy farm it accounts more than 75% of total variable cost. Second highest cost at the dairy farm was labour cost and then the other cost. The highest feeding cost at the gowshala (dairy farm) in the year 2016 was 10429490(Rs). And lowest in the year 2013 was 7479100. In 2012 the highest feeding cost in the month of March was and lowest in the month of August was 483002.5. In 2013 the highest feeding cost in the month of April was 780900 and lowest in the month of October was 266885. In 2014 the highest feeding cost in the month of January was 898200 and lowest in the month of February was 437999. In 2015 the highest feeding cost in the month of July was 885680 and lowest in the March was 535490. In 2016 the highest feeding cost in the month of March was 1193915 and lowest in the month of December was 706105. In the year 2017 the highest feeding cost in the month of November was 1118250 and lowest in the month of May was 413000.

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