



# IJASVM

**International Journal of Agricultural  
Sciences and Veterinary Medicine**



**ISSN : 2320-3730**

**Vol. 6, No. 1, February 2018**



[www.ijasvm.com](http://www.ijasvm.com)

**E-Mail: [editorijasvm@gmail.com](mailto:editorijasvm@gmail.com) or [editor@ijasvm.com@gmail.com](mailto:editor@ijasvm.com@gmail.com)**

Research Paper

# PRACTICAL APPROACH FOR FARMERS FOR EFFICIENT UTILIZATION OF URINE AND DUNG OF DAIRY FARM ANIMALS

Manish Pandey<sup>1\*</sup>

\*Corresponding Author: Manish Pandey, ✉ manish1110222@gmail.com

Received on: 25<sup>th</sup> November, 2017

Accepted on: 17<sup>th</sup> January 2018

Urine from healthy animal is considered as nature's elixir for good health and dung of cow has been used by many researchers as feed for pig and fish. An experiment, during 25 August to 24 September of 2017, was made to study the acceptance of diluted urine treated straw and sun dried mix concentrate as feed on 15 cattle. The urine of animals in morning hours was collected in clean container and double quantity of drinking water was mixed to the collected urine (to reduce ammonical odor and natural taste of urine) also the freshly voided dung (only superficial devoid of soil and other floor impurities) was collected and spread in large thin plate and kept in sun to dry for 3 days. The urine and water solution was sprinkled to equal amount of straw (1 kg straw +1 kg urine water mixture) and kept for 2-3 hours before feeding. Also completely dried dung (3 days later) was mixed in cattle concentrate feed mixture in 1:5 (1 kg dried dung + 5 kg concentrate feed). The diluted urine treated straw offered to cattle at 11:00 am mixed with chaffed green fodder in ratio 1:5 (1 kg treated straw +5 kg chaffed green fodder) and concentrate and dried dung mixture (5:1) was offered at 5:00 pm daily for one month. Rectal temperature of all the animals was measured every morning and consistency of dung was also observed during morning hours. Urine treated straw and dung mixed concentrate was accepted by all three groups (heifers, lactating and dry) and no ill effect of inclusion of these livestock waste was observed on their rectal temperature and dung consistency.

Keywords: Diluted urine treated straw, Dried dung, Dried dung mixed concentrate

## INTRODUCTION

Livestock farms generate large volumes of waste in the form of urine and dung. One animal produces 17 to 45 ml of urine per kilogram of body weight per day (Kaneko *et al.*, 1997). Majority of

urine (95%) is water, 2.5% consists of urea and the remaining 2.5% is a mixture of minerals, salt, hormones and enzymes (Bhaduria, 2002). Urine is free, fresh, freely available without prescription and free of negative side effects. Urine was in

<sup>1</sup> Assistant Professor (Livestock Production Management), International Institute of Veterinary Education and Research, Rohtak, Haryana 124001, India.

fact never considered a waste of the body but rather as a distilled product selected from the blood and containing useful substances for the care of the body. It was referred to as the “the gold of the body” (Savica *et al.*, 2011). Wheat and rice straw is abundant in India and is important staple food for animals. Soaking of straws before feeding have beneficial effects through removal of oxalates, silica and pebbles at the same time straw became soft (Banerjee, 2005). If urine is used for soaking straw it will have two beneficial effects the water of urine remove oxalates, silica and pebbles and urea improves the nitrogen content thereby improving the quality of straw.

Average daily amount of dung produced by animal are horses 13.5 kg, cattle 24 kg, buffaloes 32.5 kg, sheep and goat 1.75 kg and poultry about 3 kg/100 birds. Cattle dung has 77.5% water, 20.3% organic matter, 0.34% nitrogen, 0.16% phosphoric acid, 0.40% potash and 0.31% nitrogen (Sastry and Thomas, 2012). Cattle manure can be fed either in dry form, chemically treated fresh manure or ensiled with forages, crop residues and other feed ingredients or wastes (Albin *et al.*, 1975). Feeding cattle manure in poultry and pigs promotes meat and egg productivity respectively. Pig waste, when processed and properly balanced with other ingredients, may become a potential feed substitute for cattle at levels up to 30% (Tadele, 2015). In fish pond substituting 25% of the food with cow manure gives the same production from the pond as regular feed. Cow meal dung can replace cereals in poultry ration. It can be used at 10 percent level satisfactory in growing ration in replacement of maize. Sun dried sheep dung meal is recommended at 5% level of in starter mash (Banerjee, 2005). Sun dried cow dung also can be mixed with concentrate available in market

thus less purchased concentrate will be consumed by the animals and reduce the cost of production.

In India urine and feces is utilized for biogas production or manure but not every Indian farmer is utilizing these farm wastes as they can be. Present work is an effort for utilizing these wastes even by the farmer who is keeping even farmers that is keeping single animal efficiently.

## MATERIALS AND METHODS

Present investigation was done in 15 cattle (5 heifers, 5 lactating, 5 dry cows) reared at Instructional livestock farm complex at International institute of veterinary education and research, Rohtak for one month (August 25, 2017 to September 24, 2017) for inclusion of livestock waste (urine and feces) in the animal feed. All the animals were de-wormed with Fenbendazole according to their body weight before the starting of experiment. The urine of animals in morning hours was collected in clean container and double quantity of drinking water was mixed to the collected urine (to reduce ammonical odor and natural taste of urine) also the freshly voided dung (only superficial dung devoid of soil and other floor impurities) was collected and spread in large thin plate and kept in sun to dry for 3 days. Inclusion amount was kept low, the urine and water solution was sprinkled to equal amount of straw (1 kg straw +1 kg urine water mixture) and kept for 2-3 hours before feeding. Also completely dried dung (3 days later) was mixed in cattle concentrate feed mixture in 5:1 (5 kg concentrate feed +1 kg dried dung). The diluted urine treated straw offered to cattle at 11:00 pm mixed with chaffed green fodder in ratio 1:5 (1 kg treated straw +5 kg chaffed green fodder) and concentrate and dried dung mixture (5:1) was offered at 5:00 pm daily

for one month. Rectal temperature of all the animals was measured every morning and dung was categorized in three categories hard, loose, very loose consistency and was also observed during morning hours. The acceptance of treated straw and dried feces mixed concentrate and consistency of feces of selected animals, body

Livestock Waste	Urine	Sun Dried Cow Dung
Method of Preparation	1 part urine and 2 part of clean drinking water	1 part of dried dung and 5 part of concentrate
Method of Including in Feed	(1 kg straw +1 kg urine water mixture ) +5 kg chaffed green fodder	1 kg dung + 5 kg concentrate
Time of Feeding	11:00 AM	5:00 PM



Heifer's ID	Body Weight (kg)	Lactating Cow ID	Body Weight (kg)	Dry Cow ID	Body Weight (kg)
H1	250	L1	390	D1	415
H2	260	L2	370	D2	405
H3	255	L3	365	D3	410
H4	280	L4	380	D4	405
H5	290	L5	382	D5	400
Overall	267		377.4		407

Animal	Straw (Kg)	Green Fodder (Kg)	Concentrate (Kg)	Treated Straw and Green Fodder	Dung Mixed Concentrate (1:5)
Heifer's	2	15	1.5	1 kg treated straw +5 kg green fodder	1.5 kg
Lactating cow	3	20	3.5	1 kg treated straw +5 kg green fodder	1.5 kg
Dry cow	3.5	20	2.5	1 kg treated straw +5 kg green fodder	1.5 kg

Figure 2a: Sun Dried Dung of Cow



Figure 2b: Sun Dried Dung Mixed Concentrate



temperature was recorded in selected 15 animals for 30 days daily. The collected data were analyzed as per routine statistical procedures (Snedecor and Cochran, 1994).

## RESULTS AND DISCUSSION

The finding emanating out of the experiment are presented and discussed under following headings:

### Acceptance of Treated Straw

The treated straw mixed with chaffed green fodder (1:5) 6 kg fed at 11:00 am was accepted by all the animals daily (heifers, lactating and dry) for all 30 days of trial. 100% result in acceptance of treated straw by all the three groups may be due to dilution of urine in double quantity of drinking water and further mixing it with five times more

fresh chaffed green fodder which significantly reduces the odor of urine.

### Acceptance of Sun Dried Dung Mixed Concentrate

Dried dung mixed concentrate (1.5 kg) was accepted by all the animals daily (heifers, lactating and dry) for all 30 days of trial. Acceptance of 100% of dried dung mixed concentrate may be due to complete drying in sunlight for two days had removed the odor of dung and homogenous mixture of dung and concentrate contain only 16.67% dried dung.

### Body Temperature

The mean body temperatures of heifers, lactating and dry were to  $102.00 \pm 0.59$ ,  $101.92 \pm 0.58$  and  $101.80 \pm 0.73^\circ\text{F}$ , respectively for 30 days. Since there has not been any significant deviation in rectal temperature between selected group from normal range ( $100.4$  to  $102.8^\circ\text{F}$ ) (Merek veterinary manual, 2014), the inclusion of diluted urine treated straw and sun dried dung with concentrate seemed to be non-toxic effect.

### Consistency of Dung of Selected Animals

Total 450 samples (15 animals  $\times$  30 days) 150 samples of each group of dung were examined during the study. Out of total 450 samples of dung only 27 (6%) samples were very loose or diarrheic. Out of 150 samples of heifers 12 samples were very loose, in 150 samples of lactating animals 8 samples were very loose and of dry cows 7 samples were very loose. The results reveal that inclusion did not causes severe digestive disorders as only 6% sample were diarrheic and those animal recovers without any veterinary interventions.

## SUMMARY AND CONCLUSION

Urine treated straw and dung mixed concentrate

was accepted by all three groups (heifers, lactating and dry) and no ill effect of inclusion of these livestock waste was observed on their rectal temperature and dung consistency. Urine treated straw and dung mixed concentrate can thus prove efficient method utilization of these wastes even by the farmers owning even single cow. The inclusion amount was kept low so that it does not affect the production and growth of farm animal only acceptance was observed. As farmers in India are not able to provide the required green fodder and concentrate to the animals as per their need due to low green fodder availability and high price of concentrate. Urine treated straw and dung inclusion in concentrate can compensate for some nutrient. Total dung mixed concentrate provided to 15 selected cows during 30 day trial was 675 kg (1 part dung + 5 parts concentrate) or (112.5 kg dung + 562 kg concentrate). The nutrient value of dung and concentrate is different but dung inclusion can compensate for some nutrients. India has deficit of concentrate more than 40%. If solely concentrate was offered at same rate then expenditure would be increases. Thus inclusion can reduces feed cost. Such experiments may be further planned with larger inclusion urine and dung for longer duration to ascertain its effect on growth as well as production and for the purpose of standardization. 🌱

## ACKNOWLEDGMENT

Authors are thankful to the Dean and chairman of IIVER, Rohtak (Haryana) for providing necessary facilities conduct the present study.

## REFERENCES

1. Albin R C and Sherrod L B (1975), "Nutritional Value of Cattle Feedlot Waste for Growing Fishing Beef Cattle", ASAE Publ. PROC, Vol. 275, p. 211.
2. Banerjee G C (2005), *Textbook of Animal Husbandry*, 8<sup>th</sup> Edition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
3. Bhadauria H (2002), "Gomutra-Ek Chamatkari Aushadhi (Cow urine-A Magical Therapy)", pp. 71-74.
4. Erickson H H, Jesse P G and Etsuro E U (2004), "Dukes' Physiology of Domestic Animals", William O Reece (Ed.), Vol. 512, Cornell University Press, Ithaca, New York.
5. Kaneko J J, Harvey J W and Bruss M (1997), *Clinical Biochemistry of Domestic Animals*, 5<sup>th</sup> Edition, Academic Press Ltd., California, USA.
6. Merck Veterinary Manual (2014), *Online Kitap*, <http://www.merckmanuals.com/html> (Erisim: 22.12. 2014).
7. Sastry S N R and Thomas C K (2012), *Livestock Production Management*, 4<sup>th</sup> Edition, Kalyani Publishers, New Delhi 110002.
8. Savica V, Calo L A, Santro D, Monardo P, Mallamace A and Bellinghieri G (2011), "Urine Therapy Through the Centuries", *J. Nephrol.*, Vol. 24, No. 17, pp. 123-125.
9. Snedecor G W and Cochran W A (1994), "Statistical Methods", Oxford and IBH Publishing Co., New Delhi, India.
10. Tadele Y (2015), "Utilization of Farm Animal Organic Waste as Feeds for Livestock and Poultry", *Advances in Life Science and Technology*, Vol. 32.



**International Journal of Agricultural Sciences and Veterinary Medicine**

**Hyderabad, INDIA. Ph: +91-09441351700, 09059645577**

**E-mail: editorijasvm@gmail.com or editor@ijasvm.com**

**Website: www.ijasvm.com**

