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## LIST OF ABBREVIATIONS

A/G	Albumins/Globulins ratio
AC	Ambient circumstances
ACTH	Adreno-cortico tropic hormone
Add.	Additives
ADG	Average daily gain
ADH	Anti-diuretic hormone
Alb.	Albumins
Ani.	Animal
Asb.	Asbestos shade
ASH	Ash
AT	Ambient temperature
Aver. or Ave.	Average
Bst	Bovine somatotropin
BT	Body temperature
BW	Body weight
BWc	Body weight changes
CF	Crude fiber
CFM	Concentrates feed mixture
Con.	Control
CP	Crude protein
D.T.	Day time

DIR	Digital infra red thermometer
DM	Dry matter
DMC	Dry matter concentrate
DMI	Dry matter intake
DWG	Daily weight gain
EE	Either extract
ETHI	Elevated temperature humidity index
Exp.	Experiment or Experimental
F:G	Feed : Gain
FC	Feed conversion
FCM	Fat corrected milk
FE	Feed efficiency
FU	Feed utilization
G	Group
GH	Growth hormone
Glub.	Globulins
H. or h.	Head of animal
Hb	Hemoglobin
Heif	Heifers
Holst	Holstein breed
HSP	Heat shock proteins
IGF-I	Insulin like growth factor-1

KK	Korral Kool
LBW	Life body weight
Lys	Laysen
M	Month
ME	Metabolizable energy
Min	Minute
Min. temp	Minimum temperature
NE	Net energy
NEg	Net energy for gain
NEm	Net energy for maintenance
Net.	Shade-net shade or cloth
NPN	Nitrogen non-protein
r.p.m	Round per minute
r.pm or Resp./min	Respire per minute
RBC's	Red blood cells
Ree.	Reed-mat shade
RH	Relative humidity
RIA	Radioimmunoassay
RR	Respiration rate
RT	Rectal temperature
SCC	Somatic cell count
SE	Starch equivalent

SH	Shaded
Sig.	Significant
ST	Skin temperature
T	Treatment
T <sub>3</sub>	Triiodothyronine hormone
T <sub>4</sub>	Thyroxin hormone
TCAL	Thermal comfort with ad libitum feed
TCR	Thermal comfort with restricted feed
TDN	Total digestible nutrients
Temp.	Temperature
THI	Temperature humidity index
TL	Total lipids
TMR	Total mixed ration
TP	Total protein
TSAL	Thermal stress with ad libitum feed
VFA	Volatile fatty acids
Vit or V.	Vitamin
VWI	Voluntary water intake
W.	With
WBC's	White blood cells
WC	Water consumption
wk	Week

## 6-CONCLUSION AND RECOMMENDATION

Summing up the points of comparison between the two shading and additives treatments and control group during the experimental months, under study, and their effects on the physiological responses of the animals could be discussed in accordance with the obtained data from this study.

It's clear that, using shade-net material for shading was the best choice enhancing for animals performance, then reed-mat material also, enhanced animal's performance, but less than the previous material and more than control group, whereas, they increase significantly dry matter intake (DMI), daily weight gain (DWG), feed efficiency (FE), total proteins (TP), albumin (Albu) and total lipids (TL). While, they decrease significantly skin temperature (ST), respiration rate (RR) and feed conversion (FC), comparing with control group. Also, they did not affected significantly on water consumption (WC), hemoglobin percentage (Hb%), globulin (Glop), albumin/globulin ratio (A/G) and triiodothyronine ( $T_3$ ). While, using minerals-NPN additives slightly decreased, and enhanced significantly, ST and RR and increased WC higher significantly than control group.

Also; experimental months affected significantly on some parameters, whereas, it was increased gradually and significantly each of (WC), (DMI), (FC) and (FE) throughout experimental months. Also increased significantly (ST) and (RR) during Jul. ( $M_2$ ) and Aug. ( $M_3$ ). Whereas, (DWG) was not affected by months; TP, Alb, Glob, A/G and TL increased through Jul. ( $M_2$ ) to Sept. ( $M_4$ ). While  $T_3$  decreased significantly through the same periods; and the opposite was happened during Sept. ( $M_4$ ). Concerned Hb%, it was significantly lower in Jun ( $M_1$ ) then increased during Jul ( $M_2$ ) and Aug. ( $M_3$ ), then significantly increased more through sept. ( $M_4$ ).

Also, day time affected significantly on ST and RR, whereas, both of them reached its maximum at 2pm. then decreased at 7pm., and reached its minimum at 7am.

In conclusion, using shade-net for roofing shades as mean for elevating heat stress on crossbred feed lot calves to improve their performances under hot seasons, was the best economically way of the three experimental materials and recommended for great farms, specially, recently new technologies are now offering life spans up to 10 years . Also, using reed-mat was less effective than the previous material and more positive effect than asbestos (control group). It was simple mean for keeping calves during heat stress of hot summer, so that, it recommended for small farms and farmers owned remarkable animals. Using additives-NPN under using asbestos shed is not enough for good performance. Generally, asbestos is not suitable material for roofing sheds to elevating heat stress.