



UNIVERSIDAD AUTÓNOMA DEL ESTADO DE MÉXICO
FACULTAD DE MEDICINA VETERINARIA Y ZOOTECNIA
PCARN



EVALUATION OF ANIMAL WELFARE DURING TRANSPORT OF SHEEP FOR SLAUGHTER.

POR: MIGUEL ANGEL PULIDO RODRIGUEZ
D2

COMITÉ TUTORIAL:

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CERRILLO PIEDRAS BLANCAS, TOLUCA, MÉXICO; NOVIEMBRE DE 2016

Animal welfare

- The state or the way an animal faces and tries to adapt to the conditions of its environment or environment.



Animal welfare on the farm



Sheep are ruminants

Use of feces to feed them.

- Flours of animal origin.
- Beta-agonists.
- Growth hormones.
- Steroidal hormones
- Anabolic or growth promoters.

- Animals should be treated with respect and dignity throughout their lives.

- Provide humanitarian death.



Pérez, 2004

Animal Welfare in sheep transport

Personnel carrying out transportation should have the knowledge and care to handle the animals in order to minimize the stress of transportation.



Damage and injury to animals must be avoided, through proper handling, and good infrastructure of the means of transport.



- The recommended transport densities must be respected to ensure that the animals are in good condition.

PROMEDIO DE PESO (KG)	ÁREA DE PISO(M ² / ANIMAL)	NÚMERO DE CABEZAS/12,2 M
20	0.17	170
30	0,19	150
40	0,22	130
50	0,27	110
60	0,29	100



Fuente: Department of Local Government and Regional Development Western Australia, 2003.

¿Why Capulhuac?

- Between 40 and 60 thousand animals per month are slaughtered from Querétaro, Guanajuato, Jalisco, San Luis Potosí, Zacatecas, Chihuahua, Coahuila and Estado de México.

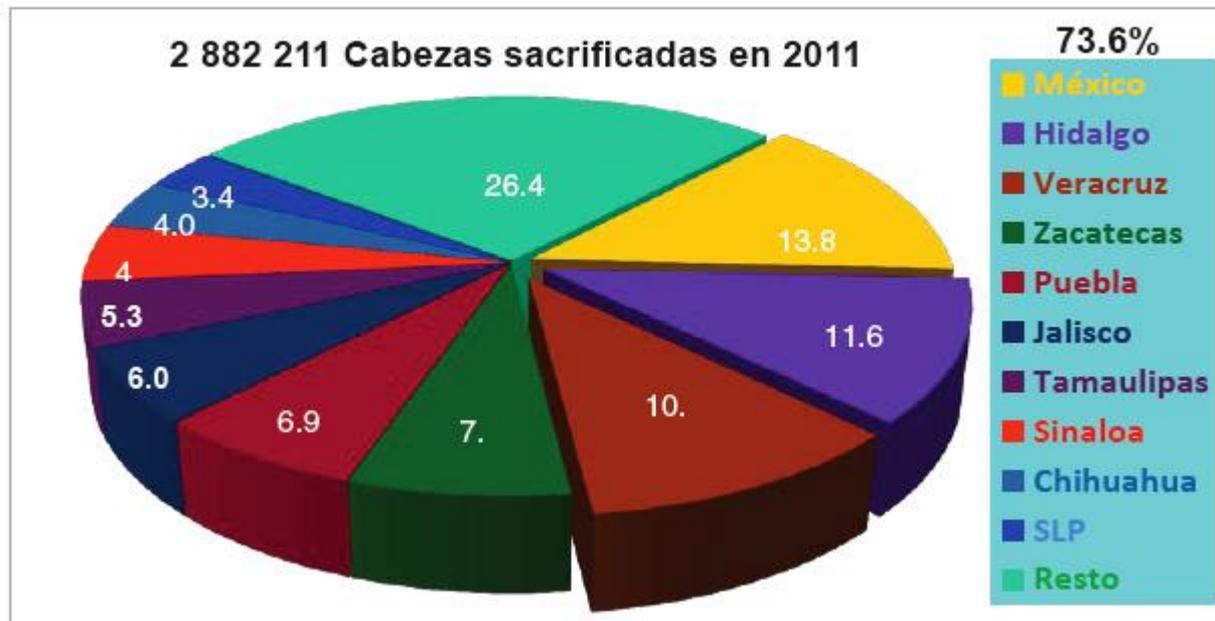
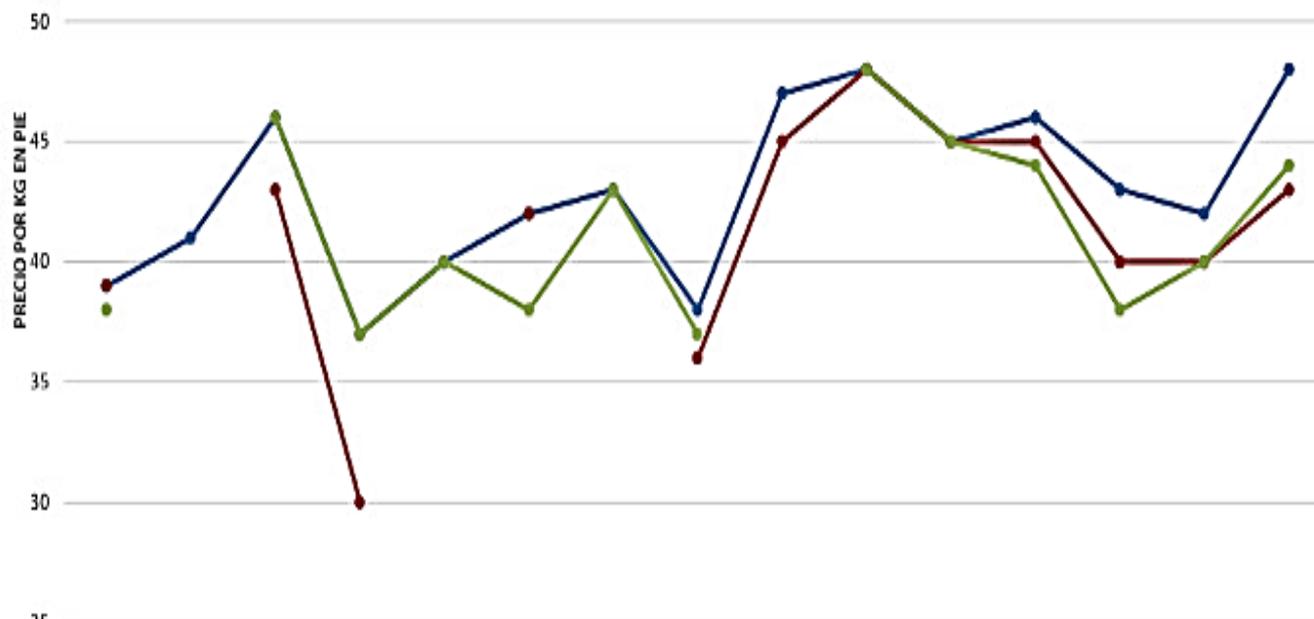


Figura 2. Porcentaje anual de matanza ovina en México (SIAP-SAGARPA, 2011)

Precios Registrados en el Ganado Ovino para Abasto durante la semana del 15 al 22 de Agosto del 2016

ANIMALES GORDOS, SEMANA DEL 15 AL 22 DE AGOSTO DEL 2016



	CHIH	N.L	CD. VICTORIA TAMP	SIN.	JAL.	AGS	GTO	ZAC	Morelos	MEX Calpuhuac	MEX Istlahuaca	HGO. Cuautepec	Yuc. Tizimin	CHIS	TAB
—●— Gordo grano	39	41	46	37	40	42	43	38	47	48	45	46	43	42	48
—●— Gordo Pasto	39		43	30		42		36	45	48	45	45	40	40	43
—●— Gorda	38		46	37	40	38	43	37		48	45	44	38	40	44

Organismos afiliados a la UNO y/o CESPO, 2016

Barbacoa

Artisanal, family, cultural - economy



Material and methods

- For the present work, 60 cattle introducers from the Capulhuac Region were visited with a size of between 100 and $600 \geq$ sheep transported. Representing 60% of the total.



Survey

 <p>FMVZ UNIVERSIDAD AUTÓNOMA METROPOLITANA Unidad Lerma</p>	<p>ENCUESTA DEL ESTRÉS EN EL TRANSPORTE SOBRE EL BIENESTAR ANIMAL DE OVINOS UNIVERSIDAD AUTÓNOMA DEL ESTADO DE MÉXICO FACULTAD DE MEDICINA VETERINARIA ZOOTECNIA PCARN</p> <p>Cualquier aclaración, Profa. Responsable: DRA. MARÍA ANTONIA MARIEZCURRENA BERASAIN Contacto: mamariezcurrab@uaemex.mx</p>
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INDICACIONES

Por favor, lea detenidamente cada uno de los enunciados y marque con un círculo el número correspondiente a la/s opción/es escogida/s. Por favor, no deje ninguna cuestión sin responder. *Muchas gracias por su tiempo.* Esta es una encuesta anónima.

- DATA OF THE PERSON CONCERNED
- TRANSPORTATION LOGISTICS
- ACCIDENTS AND LABOR RISK
- IMPORTANCE OF ANIMAL WELFARE

Experimental design

- Multivariate Analysis Techniques
- It is necessary to explore the dataset to reduce its dimensional space and to be able to understand and describe the phenomenon under study.

Statistic analysis

All statistical analyzes were performed using the SPSS software package, Version 21.0.

Results obtained



COMERCIALIZACIÓN

• EN LA UNIDAD CERCA DE 18,000 OVINOS ANUALES

PRINCIPAL CENTRO DE ACOPIO EN EL MUNDO: CAPULHUAC

Considerado el principal centro de acopio de ovinos en el mundo, el municipio de Capulhuac, ubicado en el Estado de México cuenta con más de 35 mil familias de las cuales el 80 por ciento de ellas se dedica a la industria de la carne, debido a la gran demanda que existe en los estados del centro de nuestro país.

Por ello, en este lugar, como en todos aquellos en donde se concentran animales procedentes de otros países, se requieren estrictas medidas de bioseguridad con el fin de resguardar la producción ganadera y la salud de los consumidores a través de instancias establecidas por la Secretaría de Agricultura y Desarrollo Rural (Sagar).

Fal es el caso de la Unidad de Regulación Zootécnica, la cual funciona desde 1998 gracias al apoyo del presidente municipal Guillermo González Zamora, y por la gestión del médico Gustavo Palacios González.

Esta unidad recibe cerca de 1500 animales mensuales con un peso aproximado de 70 kilogramos y el precio al que se paga es de 12 a 13 pesos el kilo.

La Unidad de Regulación Zootécnica es la encargada de certificar a la movilización de animales en pie, productos y subproductos de origen animal, que cumplen con las normas oficiales mexicanas, para que puedan ser trasladados desde Capulhuac a cualquier lugar del país donde sea solicitado.

Don Julián Martínez, administrador de esta unidad, explicó a *La Revista del Borrego* que el centro verifica que se cumplan rigurosamente las normas sanitarias NOM 025 NOM 019 y de regularización NOM 062. Mencionó asimismo que la movilización de la carne ovina se realiza dentro del Estado de México, Distrito Federal, Guerrero, Guanajuato e incluso Chiapas.

El centro recibe exclusivamente borregos de importación que van directamente a un rancho o planta de sacrificio, pero también certifica la



movilización de productos o subproductos como carne congelada y piel.

El proceso de certificación no tarda más de tres días, tiempo durante el cual el ganado que viene desde la frontera llega a un corral de acopio donde es descargado, pasando por una manga de manejo, en aquí donde se detectan algunos posibles problemas, para posteriormente ingresar a los corrales donde se los alimenta con alfalfa y avena para mantenerlos en forma.

De acuerdo con la explicación de Julián Martínez, los animales que se importan pasan a revisión por tres médicos distintos, antes de llegar a Capulhuac. Uno es el médico federal veterinario que otorga el certificado de origen de donde procede el ganado, otro es el médico veterinario encargado de la cuarentena en el estado de Texas, de donde sale y, finalmente, el doctor Dorra, mexicano, que certifica la importación.

Este procedimiento permite detectar alguna enfermedad, por lo que se garantiza que el animal que ingresa a México se encuentra libre de enfermedades y es de excelente calidad.



De derecha a izquierda: médico Gustavo Palacios, ingeniero Guillermo Zamora, presidente municipal de Capulhuac, Don Julián Martínez, administrador, acompañados de funcionarios de la Sagar.

Table 1. Demographic characteristics and attitudes of drivers on the welfare of animals during transport to the municipality of Capulhuac, State of Mexico evaluated, 2016

Variables		n	%
Drivers	Owner	38	63.3
	Employee	14	23.3
	Partner	8	13.3
Age	18-28	8	13.30
	29-38	17	28.30
	39-48	21	35.00
	49-58	10	16.70
	59 >	4	6.70
Years of experience handling the livestock truck	1-3	11	18.30
	4-6	6	10.00
	7-10	6	10.00
	10 > age	37	61.70
Suffer from chronic illness	Yes	8	13.3
	Do not	52	86.7
Optimal Intervals in Vehicle-Based Transport	Transport < 90	24	40.00
	90 ≤ Carry < 300	22	36.7
	300 ≤ Carries	14	23.3

Table 2. Accidents in transport, causes, mortality and injuries, regarding the welfare of the animals during the transport to the municipality of Capulhuac, State of Mexico evaluated, 2016

Variables		n	%
Has suffered an accident in the transport of animals	Yes	27	45.00
	Do not	33	55.00
Causes of Accident	Turn	15	55.56
	Shock	11	40.74
	Mechanical failure	1	3.70
Time of the accident	Day	9	33.33
	Night	18	66.67
In the most significant accident that happened to the surviving and injured animals?	Re-transported	8	33.33
	Abandonment	4	16.67
	Empty	12	50.00
Does the transport have any mortality?	Yes	41	68.30
	Do not	18	30.00
Sheep are injured when transported	Yes	25	41.70
	Do not	30	50.00
What kind of injuries do sheep have when they are transported?	Fractures	4	16.00
	Hematomas	5	20.00
	Exhaustion	16	64.00
Methods to mobilize sheep during loading and unloading when transported	Electrical current	10	16.70
	Sticks	5	8.30
	Screams	35	58.30
	Other	9	15.00

Conclusion

- It is concluded that in the study area, the adoption of infra structure is required that allows an optimal handling of the animals during the trip, as well as the training of the transporters, the promotion of BA practices in all users of the meat chain Sheep and the development of investigations that evaluate the impact of the BA on the quality and safety of the meat, as well as the economic losses due to the lack of its implementation.



MOL2NET 2016, International Conference on Multidisciplinary Sciences, 2nd edition

5 December 2016–25 January 2017

Time Schedule & Deadlines

Abstract Submission: 20 Jan. 2017
 Acceptance Notification: 20 Jan. 2017
 Full Paper Submission: 20 Jan. 2017

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Universidad Autónoma del Estado de México



2016-11-21 10:11:53 Editor

Previous title: Evaluation of animal welfare during transport of sheep for slaughter.

Previous abstract:

During transport, loading and unloading sheep are subjected to stressors that affect their welfare and the quality of the meat, in addition to producing significant economic losses to the producers. Objective: To evaluate the animal welfare practices during the terrestrial transport of sheep for slaughter. The information collection was carried out by means of a (transport stress survey on animal welfare of sheep). Demographic variables, animal management and vehicle design conditions, transport risks, type of animals, such as feeding, perception of animal welfare were evaluated. The transport of sheep by people aged between 29 and 48 years (63.30%), the drivers own the vehicle for the transport of sheep (63.30%). Drivers do not suffer from any chronic illness (86.7%) because they cannot perform their activity. The drivers do not monitor the animals' physical conditions during the trip, and they use them with methods such as picaneléctrica (16.70), sticks (8.30%), shouts (58.30%), and other methods (15.00%) which do not guarantee animal welfare. In the transportation of passengers (45.0%); Causes of the accident (55.56%), shock (40.74) and mechanical failures (3.70), the accidents occurred every day (33.33%) and night (66.67%). The transport has a mortality of (1-2%) and the conditions of the vehicles comply partially with the sanitary requirements. Conclusions the improvement of sheep transport infrastructure in the study area, the training of drivers, and the promotion of animal welfare practices in all chain users and the development of research in the area are required.

2016-11-21 10:11:53 Editor

→ Pending author revision

Editor decision: Revision

Editor comments: This abstract has the same title than other already accepted. Please, advise either it is a duplicate submission or a second submission with error in title. Sincerely yours, Humberto Gonzalez-Diaz, Prof. MOL2NET Chairperson



My people are destroyed for lack of knowledge?

Thank you.

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