Iranian Journal of Veterinary Research, University of Shiraz, Vol. 7, No. 1, Ser. No. 14, 2006

Short Paper

Study on the frequency of pregnant ewes slaughtered in Khorram Abad abattoir, Iran

Kheradmand, A.[1*]; Batavani, R. A.[2] and Babaei, H.[3]

[1]Department of Clinical Sciences, College of Veterinary Medicine, University of Lorestan, Khorram Abad, Iran; [2]Department of Clinical Sciences, Faculty of Veterinary Medicine, University of Urmia, Urmia, Iran; [3]Department of Clinical Sciences, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran

[*]**Correspondence:** A. Kheradmand, Department of Clinical Sciences, College of Veterinary Medicine, University of Lorestan, Khorram Abad, Iran. E-mail: arashkheradmand@yahoo.com

Summary

The aim of this survey was to evaluate the frequency of pregnant ewes slaughtered in Khorram Abad abattoir and estimation of their gestational age. Over a period of five months in fall and winter, a total number of 3046 uterine tracts were collected. Pregnancy was detected in 56.50% of ewes, 52.36% and 4.13% of which carried singleton and twins, respectively. The highest frequency of pregnancy was detected in January (65.63%) and the lowest frequency was detected in March (35.02%). Among a total number of 1721 pregnant ewes, the most frequency of gestational age (34.68%) was recorded to be between 2 and 3 months of gestation, while 5.05% was detected to be above 121 days. Overall, the number of pregnant ewes with a gestational age over two months was considerable (59.83%). It was concluded that reproductive waste resulting from slaughtering of pregnant animals is important in ewes in Khorram Abad and could be prevented by an improved antemortem examination.

Key words: Ewe, Pregnant, Gestational age, Abattoir

Introduction

Sheep have always been of vital economic importance as producers of meat, wool and milk in many countries (Batavani *et al*., 2003). The long history of sheep breeding as well as geographical situation and presence of pastures, cause more interest of the farmers for sheep breeding in Iran. Abattoir surveys have revealed that considerable numbers of animals are pregnant when they are slaughtered (Adams, 1975; Emady, 1976; Al-Dahash and David, 1977; Winters and Dobson, 1992; Singleton and Dobson, 1995; Alosta *et al*., 1998; Goossens *et al*., 1998; Smith *et al*., 1999; Lawton *et al*., 2000). However, literature pertaining to the frequency of pregnant ewes slaughtered in the abattoirs of Iran is very limited. It is essential for Iranian sheep farmers to know, whether the ewes are pregnant or not, before they are sent to slaughter-house. Although economical force might be the reason for slaughtering pregnant ewes in some cases, nevertheless providing facilities for accurate diagnosis of pregnancy can significantly decrease such a noticeable economic loss for sheep farmers.

The aims of the present study were, (1) to find out what proportion of ewes were pregnant when they were slaughtered and (2) to estimate stage of pregnancy corresponding to crown-rump length (CRL) of fetuses in pregnant ewes killed at Khorram Abad slaughter-house in autumn and winter.

Materials and Methods

Survey was made on 3046 reproductive tracts of ewes at the industrial abattoir of Khorram Abad in western Iran during November (2003) through March (2004), which is common breeding season of ewes

in Iran. The abattoir was visited once to twice a week. First, uterine tracts were collected at the slaughter line to assess the incidence of pregnancy. Then, each tract was incised along the uterine body as well as both horns, so that any fetus with a straight CRL more than 0.5 cm became visible. Upon measurement of CRL by a ruler, fetal age was estimated using Richardson's formula: developmental age (days) = 2.1(Y+17); Y = the length of CR in "cm" (Noakes *et al*., 2001). The presence of twins and triplets was also recorded.

Results

Incidence of pregnancy

The incidence of pregnancy in the ewes slaughtered during the different months of the study is showed in Table 1. Among a total number of 3046 uterine tracts, 1721 uteri (56.50%) were gravid, 52.36% and 4.13% of which carried singleton and twins, respectively. The monthly percents of pregnancy varied from 35.02% in March to 65.34% in January.

Stage of pregnancy

Fetal ages are showed in Table 2. The highest and the lowest frequencies of fetal ages were found to be during days 61-90 (34.68%) and above day 121 (5.05%), respectively. Furthermore, the highest fetal ages were recorded in January and February.

Discussion

According to the results of the present study, the overall percentage of pregnancy (56.50%) is more than 10% and 3.37% reported by Alosta *et al*., (1998) and Smith *et al*., (1999), respectively. When applied on a nationwide basis, this rate of slaughter of the pregnant sheep population represents a considerable loss in terms of production and income. In contrast, the proportion of pregnant animals in the present study was approximately similar to those reported by Emady (1976), 57.5% and Goossens *et al*., (1998), 60.0%. The highest proportion of pregnant animals recorded in January and December. This is in agreement with that reported by Smith *et al*., (1999). Regarding the beginning of the breeding season in September, these high frequencies are expectable.

The distribution of the stages of

Table 1: Frequencies of pregnant ewes with single, twin and triplet pregnancies during different months of study

Months of year	Number of uterine tracts	Single pregnancy		Twin pregnancy		Triplet pregnancy		Total	
		Number	%	Number	%	Number	%	Number	%
November	588	296	50.34	20	3.40	_	_	316	53.74
December	751	410	54.59	37	4.92	_	_	447	59.52
January	704	419	59.51	41	5.82	_	_	460	65.34
February	669	353	52.76	28	4.18	_	_	381	56.59
March	334	117	35.02	_	_	_	_	117	35.02
Total	3046	1595	52.36	126	4.13	_	_	1721	56.50

Table 2: Age distribution of fetuses in slaughtered pregnant ewes

Months of year	<30 days		31-60 days		61-90 days		91-120 days		121-150 days	
	Number	%	Number	%	Number	%	Number	%	Number	%
November	79	25	73	23.1	109	34.49	55	17.40	_	_
December	69	15.43	139	31.09	142	31.76	83	18.56	14	3.13
January	46	10	122	26.52	179	38.91	90	19.56	23	5
February	30	7.87	108	28.34	127	33.33	82	21.52	34	8.92
March	_	_	25	21.36	40	34.18	36	30.76	16	13.67
Total	224	13.01	467	27.13	597	34.68	346	20.10	87	5.05

pregnancies is also important. Fetuses less than one month of age were probably too small to be detected. Up to 27.13% and 34.68% of the ewes were in the 31-60th days and 61-90th days of gestation, respectively. Experience indicates that pregnancy can be diagnosed confidently from day 30 on the basis of the imaging of a fluid-filled uterus and placental material by real-time ultrasound (Buckrell *et al*., 1986; Gearhart *et al*., 1988; Aiumlamai *et al*., 1992; Garcia *et al*., 1993; Schrick and Inskeep, 1993; Sharkey *et al*., 2001; Batavani *et al*., 2003). In the present study, 25.15% of the ewes were in the third trimester of pregnancy, which could have been detectable even by abdominal palpation. The benefits of pregnancy diagnosis in all species are well accepted. To ensure that a high proportion of a herd successfully conceives during breeding season, reproductive management is of considerable importance. Following mating, timely and accurate detection of pregnancy status is very important for evaluation of reproductive performance and assisting for future management decision. Unfortunately, the most commonly used methods of diagnosing pregnancy in the ewes in Iran include farmer observation and abdominal palpation.

One of the interesting results was that, a few slaughtered ewes with about 4 months of gestational age were observed in November. This revealed that, although behavioural oestrus and ovulation occur during breeding season, some individual ewes are able to mate out of season.

There are several reasons for culling of pregnant ewes. One of the reasons could mostly be assumed is that they have been sent for slaughtering because they were barren. This suggests that the way in which farmers decide to cull an ewe have much errors. The results of a study in cow (Singleton and Dobson, 1995) shows that in 50.9% of cases, the farmers thought that the cow was not pregnant. Another reason for slaughtering of pregnant ewes may be due to weak economic potential of farmers and other economic factors such as the cash flow of farm and nutritional factors such as availability of pasture and the effects of a dry season, the lengths of housing period and the stock of stored feed.

It is concluded that reproductive waste due to the slaughtering of pregnant animals is important in ewes in Khorram Abad and the use of ultrasound scanner as a component of flock health program could avert such losses, especially since flock owners appear to be unaware of them.

Acknowledgement

The authors gratefully acknowledge facilities provided by the staff of Khorram Abad abattoir.

References

1- Adams, NR (1975). A pathological and bacteriological abattoir survey of the reproductive tracts of Merino ewes in Western Australia. Aust.Vet. J., 51: 351-354.

2- Aiumlamai, S; Fredriksson, G and Nilsfors, L (1992). Real-time ultrasonography for determining the gestational age of ewes. Vet. Rec., 131: 560-562.

3- Al-Dahash, SY and David, JSE (1977). The incidence of ovarian activity, pregnancy and bovine genital abnormality shown by an abattoir survey. Vet. Rec., 101: 296-299.

4- Alosta, RA; Vaughan, L and Collins, JD (1998). An abattoir survey of ovine reproductive tracts in Ireland. Theriogenology. 50: 457-464.

5- Batavani, RA; Farokhi, F and Shafaghnejad, B (2002). Diagnosis of pregnancy in sheep by real time ultrasound imaging. Proc. 12th Iranian Veterinary Congress. Tehran, Iran, 12-14 Feb., P: 121.

6- Batavani, RA; Mortaz, E; Fallahian, K and Dawoodi, MA (2003). Study on frequency, etiology and some enzymatic activities of subclinical ovine mastitis in Urmia, Iran. Small Rumin. Res., 50: 45-50.

7- Buckrell, BC; Bonnett, BN and Johnson, WH (1986). The use of real-time ultrasound rectally for early pregnancy diagnosis in sheep. Theriogenology. 25: 665-673.

8- Emady, M (1976). Reproduction of the ewe and female goat in the province of Fars, Iran. Vet. Rec., 99: 208-209.

9- Garcia, A; Neary, MK; Kelly, GR and Pierson, RA (1993). Accuracy of ultrasonography in early pregnancy diagnosis in the ewe. Theriogenology. 39: 847-861.

10- Gearhart, MA; Wingfield, WE; Knight, AP; Smith, JA; Dargas, DA; Boon, JA and Stockes, CA (1988). Real-time ultrasonography for determining pregnancy status and

visible fetal numbers in ewes. Theriogenology. 30: 325-337.

11- Goossens, B; Osaer, S; Kora, S; Chandler, KJ; Petrie, L; Thevasagayam, JA; Woolhouse, T and Anderson, J (1998). Abattoir survey of sheep and goats in the Gambia. Vet. Rec., 142: 277-281.

12- Lawton, DEB; Mead, FM and Baldwin, RR (2000). Farmer record of pregnancy status pre-slaughter compared with actual pregnancy status post-slaughter and prevalence of gross genital tract abnormalities in New Zealand dairy cows. N. Z. Vet. J., 48: 160-165.

13- Noakes, DE; Parkinson, TJ and England, GCW (2001). *Arthur's veterinary reproduction and obstetrics*. 8th. Edn., London, W. B. Saunders Co., PP: 28, 557-570.

14- Schrick, FN and Inskeep, EK (1993). Determination of early pregnancy in ewes utilizing transrectal ultrasonography. Theriogenology. 40: 295-306.

15- Sharkey, S; Callon, RJ; Mortimore, R and Kimberling, C (2001). Reproductive techniques in sheep. Vet. Clin. North Am. Food Anim. Pract., 17: 435-455.

16- Singleton, GH and Dobson, H (1995). A survey of the reasons for culling pregnant cows. Vet. Rec., 136: 162-165.

17- Smith, KC; Parkinson, TJ and Long, SE (1999). Abattoir survey of acquired reproductive abnormalities in the ewes. Vet. Rec., 144: 491-496.

18- Winters, AC and Dobson, H (1992). Observations on the genital tract of cull ewes. Vet. Rec., 130: 68-70.