



West Virginia University

# News Ewe Can Use

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## Annual Small Ruminant's Shortcourse Saturday, November 4, 2006 Clinton Hedrick Community Bldg. – Riverton, WV



8:30-9:00 a.m.	Registration	
9:00 a.m.	Welcome and Opening Remarks	Dr. Paul Lewis
9:15 a.m.	Management, the Key to Parasite & Disease Control	Dr. Margaret Minch
10:30 a.m.	WVDA Update – Scrapie Program & Animal ID	Dr. Joe Starcher
11:00 a.m.	Current Status of Predator Control Programs in WV	Bill Bonwell
11:30 a.m.	Activities of the American Lamb Board	Joe Harper
12:00	Lunch	
1:00 p.m.	Small Ruminant Research Update from ARS/Beaver, WV	Dr. Ken Turner
2:00 p.m.	West Virginia Shepherd's Federation Annual Meeting	Ron Fletcher, Pres.

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Lunch – \$8.00 – Will Feature the Roast Lamb Sandwich Served at the Front Porch Restaurant / Harper's Old Country Store

Directions: The Clinton Hedrick Community Building is on Route 33 on the northern end of Riverton. Traveling east from Seneca Rocks it will be on your left.

Address Corrections  
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**2006 West Virginia Ram Performance Test Summary**

The West Virginia Ram Performance Test was initiated at the WVU Reymann Memorial Farm in Wardensville, on April 24, 2006, and concluded with the sale on July 21. Forty-five (45) ram lambs were evaluated for growth, feed efficiency, carcass merit, structural correctness, frame size, scrotal circumference and breeding soundness, and resistance to scrapie and other animal health parameters. The test evaluated ram lambs and generated comparative data on those economically important traits that we hope you feel are important to you as an individual producer, have value to make our sheep enterprises more competitive and enhance the growth and profitability of the industry.

The rams were consigned to the test by 8 seedstock producers from 3 states, WV, MD, and MI and included 12 Commercial, 16 Suffolk, and 17 Polled Dorset rams. Approximately the top 2/3rds of each breed group were offered for sale in the WV Performance Tested Ram Sale.

What was unique about this program was that it was the first ram performance test in the country

to utilize cutting edge technology to evaluate residual feed intake (RFI) as a measure of feed efficiency and include these measures as an important part of the selection index. Feed efficiency is a measure of how much animals eat compared to how much they grow. Feed normally accounts for more than 60 percent of the total livestock production cost. Consequently, feed efficiency can significantly affect the cost of production and the net return a livestock producer realizes.

At delivery the rams were evaluated for health, type and soundness (reproductive, mouth, feet and leg structure) and processed by a committee of WVU and WVDA personnel. They were treated with *Ivomectin* for control of internal and external parasites; booster vaccinated for Enterotoxemia, Tetanus, Soremouth, and Footscald and stood in a footbath of zinc sulfate and paint branded. The following day, rams not already sheared were sheared and fecal samples were collected and evaluated for Coccidia. Finding low levels of Coccidia, the entire group was treated with *Corid*. Additional fecal samples at the mid-point and end of the test revealed that no ad-

ditional treatment was necessary for the control of internal parasites or coccidia. Even with the rigorous health protocol and outstanding veterinary service provided by Dr. Matlick and the Reymann Memorial Farm crew, we did have some animal health problems. Mid way through the test, we did lose one ram due to Enterotoxemia, at which point all of the other rams received an additional booster vaccination. The day prior to the sale, several rams were diagnosed with Soremouth and the flock was quarantined.

In spite of the quarantine, due to sore mouth and other minor hassles we had a very good sale. The quarantine was lifted August 14<sup>th</sup> and all of the rams were delivered to their buyers. This year's sale averaged \$402 per ram for the 24 ram lambs sold. Consignors that participated in the WV Ram Performance Test program also offered ewe lambs for sale. Twenty-one (21) ewe lambs sold for an average of \$188.

The top indexing Suffolk ram was consigned by Peter and Kelly Vorac of Jefferson MD and sold to Broken W Farm of Old

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Fields, WV for \$700. Vorac's also consigned the high selling Suffolk ram that sold to Ewe Be Seen Farm of Spencer, WV for \$725. Ben Wilfong, of Cass, WV consigned the high indexing Dorset ram, which was also the top selling Dorset to Carissa Wilson from Moorefield, WV for \$275. The high indexing Commercial ram also from Vorac's sold to Allegheny Farms, Seneca Rocks, WV for \$400. The top selling Commercial ram was consigned by Harvey Warrick of Adrian, MI and sold to Jesse Strahan also from MI for \$525.

During the 63 day performance test the entire group of rams had an Average Daily Gain (ADG) of .98 lbs per day on a high fiber pelleted ration formulated to produce .75 lbs ADG. Individual rams ranged from 0.73-1.22 lbs ADG.

Residual Feed Intake (RFI) ranged from 124.86 to -73.53 for the entire 63 day test. The most efficient ram consumed 73.53 pounds less feed than was expected. The least efficient ram consumed 124.86 pounds more feed than expected. To further express the importance of feed efficiency, each ram was charged for his actual intake during the 63 days on test plus an average feed cost during the warm-up & off-test periods. Actual intakes averaged for each ram over the 63 day test varied from 4.3 – 9.12 lbs/day. Thus total testing cost / ram ranged from \$51.51-\$87.35. Adjusted Loin Eye Area (LEA) as measured via ultrasound ranged from 2.1 -3.7 sq. inches. Feed efficiency, gain and carcass characteristics are moderate to highly heritable traits, thus with the variability among rams, a great deal of genetic improvement can be

made by selecting the right ram for your next flock sire.

Plans are underway to improve the test and sale for next year. For additional information about the WV Small Ruminant Performance Test Program, contact Brad Smith at (304)257-4688 or email [Brad.Smith@mail.wvu.edu](mailto:Brad.Smith@mail.wvu.edu) This program is a cooperative effort of the WVU Davis College of Agriculture, Forestry and Consumer Sciences, WVU Extension, WV Department of Agriculture and the WV Purebred Sheep Breeders Association. You can access the general summary of the sale results, the sale program, and the Guidelines for consigning rams to the Performance Test at: <http://www.caf.wvu.edu/avs/sheep/>.

## IS THERE POTENTIAL TO INCREASE YOUR LAMB CROP? YOU CAN BET ON IT!

Keith Inskeep and Alison Brown Dixon

Embryonic and fetal mortality reduce lambing rates and litter sizes, thus contributing to economic loss in the sheep industry. During the course of the WV Sheep Improvement Project, we have done a lot of pregnancy diagnoses, particularly in flocks involved in the studies of induction and synchronization of estrus. Using those data we have looked for factors with which losses of potential offspring are associated. Some of our findings are very interesting and have practical implications for producers.

In the first studies in 1998 and 1999, led by Marlon Knights, pregnancy was diagnosed at days 26 to 30 after mating and data were compared to ewes lambing. Greater complete loss of pregnancy after day 26 was observed in ewes that conceived from second (19.6 to 27.5%) compared to first (9.1 to 12.4%) service during an induced spring/early summer breeding season. In ewes diagnosed pregnant to the first service period, losses from day 25 to day 50 averaged 6.2%, exactly half of the total losses in

one of the studies.

In ewes that were mated during the normal fall breeding season; average complete losses after day 25 to 30 ranged from 2 to 11% in different groups. Therefore, late embryonic and fetal losses are not a phenomenon confined to out-of-season breeding.

To try to understand pregnancy losses more fully, we began to count embryos (stages before day 42) or fetuses (day 45 and beyond)

## POTENTIAL TO INCREASE YOUR LAMB CROP?

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at different stages of pregnancy and compare those numbers from stage to stage and with numbers of lambs born. Alison Dixon analyzed data from 1375 ewes in 11 flocks in which an average of 72% of the ewes were pregnant at day 25 to 30 after breeding. Ewes lambing and lambs born were compared to pregnancy diagnosis and counts of embryos by ultrasonography near days 25, 45, 65, and/or 85 of gestation.

We were a bit surprised to learn that a greater proportion of ewes lost one (36.7%), but not all (20.5% single; 3.8% multiple), embryos or fetuses than suffered a complete pregnancy loss (Figure 1). Approximately 19.9% of ewes experienced late embryonic and/or fetal loss and 21.2% of embryos or fetuses were lost sometime between day 25 to term.

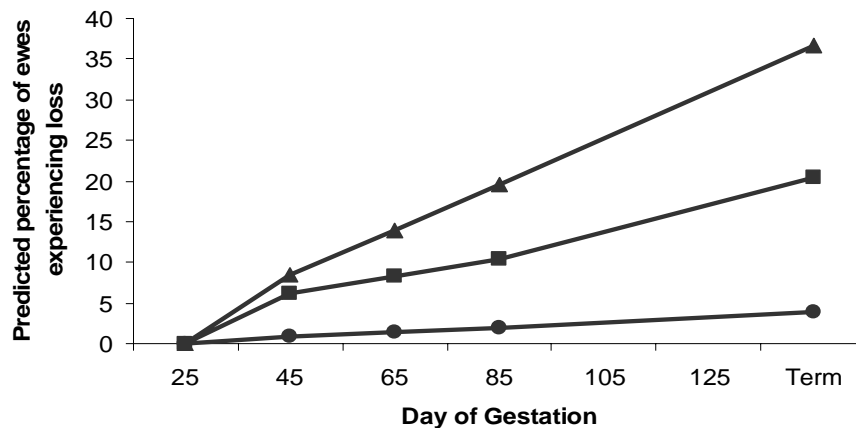
Potential offspring were lost throughout gestation; 3.7% of embryos from day 25 to 45, 4.3% of fetuses from day 45 to 65, 3.3% from day 65 to 85 and 11.5% from day 85 to parturition, thus approximately 3 to 4% for each 20 days of pregnancy beyond day 25. Patterns of loss were similar in ewes mated during the anestrus season (May/June) and the transitional period (July/August) and did not vary with service period within breeding season or with method of estrous synchronization.

We examined the associations of late embryonic or fetal losses with several variables that we could identify. Although losses varied from flock to flock, there were not consistent differences on the same farm in different years. Based on temperatures and humidities collected from the weather sta-

tion nearest each farm, losses were not related to temperature-humidity index during the week before breeding, the week after breeding or the stage of pregnancy just before or during the time that loss occurred. Thus these losses did not appear to be due to heat stress.

To examine whether hormonal deficiencies or excesses might be involved in causing losses, jugular blood was collected from the pregnant ewes at the time of pregnancy diagnosis, near days 25, 45, 65, or 85 of gestation. The serum was assayed for concentrations of progesterone and estradiol-17 $\beta$ .

Concentrations of progesterone in jugular blood serum were useful indicators of both complete and partial losses, but estradiol was not. Complete losses were greater



**Figure 1.** Estimated cumulative percentages of ewes that had complete loss of a single [■] or a multiple pregnancy [●], or partial loss of a multiple pregnancy [▲] sometime between day 25 of gestation and parturition. Comparisons of linear regressions of loss on stage of pregnancy showed that partial loss of a multiple pregnancy was greater than complete loss of a single pregnancy, which in turn was greater than complete loss of a multiple pregnancy.

## POTENTIAL TO INCREASE YOUR LAMB CROP?

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between days 25 and 65 in ewes with low (8.1%) than with medium (1.3%) or high (1.4%) concentrations of progesterone on day 25. However, between day 65 and parturition, complete losses were greater in ewes with medium (6.2%) than in those with low (0%) or high (1.4%) concentrations of progesterone on day 25. Thus, the lower the progesterone on day 25, the sooner losses were observed, but total losses from day 25 to parturition were essentially the same in ewes with medium (9.0%) or low (8.4%) progesterone on day 25. Increased complete losses from day 45 to day 65 also were associated with low progesterone on day 45.

The relationship of partial losses to concentrations of progesterone on d 25 of gestation varied with stage of pregnancy. Partial losses between days 25 and 45 were greater in ewes with high (12.2%) than with medium (5.2%) or low (2.7%) concentrations of progesterone on day 25. For the longer period from d 25 to 85 of gestation, partial losses were greater in ewes with medium (28.8%) than with low (8.8%) or high (5.9%) concentrations of progesterone on day 25.

Face color of the ewes was recorded as an indication of breed type (black-faced were of mostly Suffolk breeding, white-faced were of mostly Dorset breeding, and mottled-faced ewes were crosses of black- and white-faced breeds). Proportions of embryos or fetuses lost were associated with breed type, as were concentrations of progesterone and estradiol.

Specifically, losses of embryos that occurred from day 25, or fetuses from day 45 or 85, of pregnancy to parturition were greater in black-faced ewes (21 to 31%) than either in white-faced ewes (5 to 18%) or mottled-faced ewes (13 to 19%). Black-faced ewes had lower concentrations of progesterone (ng/mL) on days 25 (2.2), and 45 (2.7) than those of white- (3.0 and 3.0, respectively) or mottled-faced (3.3 and 3.8, respectively) ewes. Concentrations of estradiol (pg/mL) on day 25 were lower in white-faced ewes (3.6) than in black-faced (4.0) or mottled-faced ewes (4.3).

When we presented these data to the Highland County Sheep and Wool Growers, one of the farmers asked whether the reason the black-faced ewes had more losses was because they had greater ovulation rates and more embryos to begin with, on day 25. At about the same time, we had submitted the paper for publication in the *Journal of Animal Science*, and a reviewer asked the same question. We went back to the data and that was not the case. Numbers of embryos present at day 25 were greater in mottled-faced (1.91) than in either black-faced (1.73) or white-faced ewes (1.79). At day 45, both mottled-faced (1.83) and white-faced (1.81) ewes had more fetuses than black-faced ewes (1.56). At days 65 and 85, numbers of fetuses did not differ with face color. In addition, concentrations of progesterone and estradiol in jugular serum did not vary with the number of fetuses.

Thus we conclude that the

association of embryonic and embryonic and fetal losses with face color is not an artifact of larger numbers of ovulation, even though it is well known that mortality increases as numbers increase, because the capacity of the uterus becomes limiting. Reproductive wastage is great in the ewe, averaging 43.3% of potential offspring in the present study. Losses during the late embryonic and fetal periods accounted for 15.3%, while complete pregnancy failure before day 25 accounted for 28%. The conceptus seems to be playing a larger role than the dam in late embryonic and fetal losses from d 25 to parturition, because complete losses of single pregnancies and partial losses of multiple pregnancies were occurred more frequently than complete losses of multiple pregnancies. Thus there is a tremendous opportunity to improve reproductive output in sheep.

The most important contributing factors identified in this study were the variation among breed types, and the value of greater concentrations of progesterone in maternal serum at days 25 and 45 of pregnancy. Further studies are needed to identify ways to reduce or overcome these losses. It would seem logical that replacements might be selected from among twins born to ewes that had two embryos at day 25, that is, ewes in which mortality had not occurred after day 25. As black-faced ewes had the greatest losses, the opportunity for increasing lamb crop born alive may be greatest in those flocks with mostly black-faced breeding.

## West Virginia Integrated Predation Management Program September Update

Wildlife Services (WS) began removing equipment from farms that did not have continued coyote predation on livestock prior to the hunting season. There were 54 farms that required service in September. This is significantly higher than the 7 farms that required service in September 2005. In addition, WS removed 32 coyotes for the month compared to 8 coyotes removed in September 2005. WS has consistently maintained more coyote control equipment in the field during 2006 and especially in late summer months when we have historically had very few reports of livestock losses. WS removed a total of 518 coyotes exceeding 500 as predicted and exceeding last year's total of 452. During September WS had equipment set on farms in the counties of: Grant, Greenbrier, Hampshire, Hardy, Mineral, Pendleton, Pocahontas, Preston, Randolph, and Tucker.

	Number of Farms FY06	FY 06 Coyote Captures	*Total FY06 Coyotes	*Total FY05 Coyotes
<b>Oct. 05</b>	<b>25</b>	<b>11</b>	<b>11</b>	<b>26</b>
<b>Nov. 05</b>	<b>15</b>	<b>4</b>	<b>15</b>	<b>40</b>
<b>Dec. 05</b>	<b>6</b>	<b>0</b>	<b>15</b>	<b>44</b>
<b>Jan. 06</b>	<b>50</b>	<b>29</b>	<b>44</b>	<b>66</b>
<b>Feb. 06</b>	<b>60</b>	<b>57</b>	<b>101</b>	<b>115</b>
<b>March 06</b>	<b>91</b>	<b>72</b>	<b>173</b>	<b>181</b>
<b>April 06</b>	<b>107</b>	<b>89</b>	<b>262</b>	<b>281</b>
<b>May 06</b>	<b>128</b>	<b>88</b>	<b>350</b>	<b>377</b>
<b>June 06</b>	<b>122</b>	<b>54</b>	<b>404</b>	<b>428</b>
<b>July 06</b>	<b>90</b>	<b>54</b>	<b>458</b>	<b>441</b>
<b>August 06</b>	<b>90</b>	<b>28</b>	<b>486</b>	<b>444</b>
<b>Sept. 06</b>	<b>53</b>	<b>32</b>	<b>518</b>	<b>452</b>

Wildlife Services was pleased to announce the

expansion of livestock protection services to the counties of : Barbour, Harrison, Lewis, Marion, Monongalia, Preston, Summers, Taylor, Tucker, and Upshur.

### New Technology to be Used in Meat Goat Evaluation Program

The trial run of a Meat Goat Performance Test was conducted this summer at the WVU Reymann Memorial Farm in Wardensville.

Twenty-four (24) Boer cross bucks were evaluated utilizing the GrowSafe system, which includes a series of feeding stations that only one animal can use at a time. Each animal received a radio frequency identification (RFID) tag, which enabled the computer system to record when and how much it ate. At the end of the test, system users can determine each individual animal's feed efficiency.

The bucks were only evaluated over a 53 day test due to other research commitments. Average daily gain for the entire test ranged from 0.46 to 1.12 lbs per

day, with the entire group averaging 0.66 lbs per day.

While the test period was not as long as we would have liked, this trial enabled us to test the facilities with goats. We now feel confident in utilizing this new technology to conduct a central meat goat evaluation program beginning in April 2007. .

One of the biggest concerns was if we would be able to limit feeder access to just one buck at a time without them getting their horns caught at the feeder. We were able to develop a partition that worked quiet well. Watch for a more complete report of this trial and the Guidelines for consigning buck to the 2007 WV Small Ruminant Performance Test in the next newsletter.

## MPWV Meat Goat Fall Meeting

The fall meeting of the Maryland - Pennsylvania-West Virginia (MPWV) Meat Goat Producers Association will be held on November 18th starting at 9 a.m. at the Berkeley County Fairgrounds near Martinsburg, WV. The day will include an educational program, the Association meeting, a lunch featuring goat meat, and an auction at 1:00 p.m. of about 100 breeding goats. For more information on the sale, call Willie Lantz at 301-334-4121 or email [wlantz@umd.edu](mailto:wlantz@umd.edu).

The purpose of the MPWV is to promote the production of meat goats in the region. Membership is open to anyone. The membership fee is \$35 for the first year and \$20 to renew. For information on the MPWV visit their website at [www.meatgoat.biz](http://www.meatgoat.biz)



## Renewed Direction of the WV Sheep Management Project

The West Virginia Sheep Management Project is evolving into the West Virginia Small Ruminant Project to include meat goats. With the increased interest and tremendous growth of the meat goat industry in West Virginia and throughout the region, WVU faculty working with the project are trying to provide additional educational opportunities and services in the areas of Meat Goat Production and Marketing.

The Small Ruminant Project finally has a new director. Brad Smith, WVU Extension Agent in Grant County has taken-on a 50% appointment as the Director. Brad has been involved with the Sheep Management Project since it's inception nearly 10 years ago. He has worked cooperatively with WVU Davis College and Extension faculty to keep the project going in the interim between directors. Fane Irvin, previous Director and now WVU Extension Agent in Pocahontas County, continues to provide his expertise to make project activities successful.

The Small Ruminant Project team has really accomplished an awful lot during the past year, by sharing responsibilities for various projects

and events. The team of professionals will continue to work together to help farmers realize a greater return to small ruminant production and to help revitalize the sheep and goat industry in West Virginia. "With a Director, and hopefully soon to be hired Assistant, the West Virginia Small Ruminant Project will again have a staff responsible to the project, that should be able to provide more of a focus to the project activities, or at least provide someone to blame", noted Smith.

The Small Ruminant Project office is still maintained at the Community Center in Franklin and can be reached by calling 358-3661. If Brad is not there, you can leave a message or call him at the Grant County Extension office at 257-4688 or email

[Brad.Smith@mail.wvu.edu](mailto:Brad.Smith@mail.wvu.edu)

## **News Ewe Can Use**

**WV Sheep Management Project**  
**P.O. Box 96**  
**Franklin, WV 26807-0096**

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### **NEWS EWE CAN USE**

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*Mark Your Calendars!!!*

**Saturday, November 4            WV Annual Small Ruminant's Shortcourse &  
WV Shepherd's Federation Meeting**

Clinton Hedrick Community Bldg. – Riverton, WV  
Brad Smith (304)257-4688 or [Brad.Smith@mail.wvu.edu](mailto:Brad.Smith@mail.wvu.edu)

**Saturday, November 18            MPWV Meat Goat Meeting**

Berkeley County Fairgrounds, Martinsburg, WV  
Willie Lantz (301) 334-4121 or [wlantz@umd.edu](mailto:wlantz@umd.edu)

**December 9            Buckeye Shepherd's Symposium**

Chillicothe, OH            (614) 246-8299

**January 24-27            American Sheep Industry Convention**

San Antonio, TX  
Judy Malone (303) 771-3500 or [judym@sheepusa.org](mailto:judym@sheepusa.org)