# Feedlot Split Session I

## Dr. Don Williams, *presiding*

# Feedlot Disease Losses

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### Introduction

What does it really cost when an animal gets sick? A question that is extremely important to our organization. We feed over 250,000 animals a year in Southwest Kansas and the Oklahoma Panhandle.

To support decision making we have a computer data management section which has helped us review and analyze the performance of selected groups of animals during the last three years.

One question addressed when we started was the association of shrink to morbidity, mortality and cost of gain. Animal groups were selected for review based upon their homologous characteristics such as origin, weight, genetic background and season of the year fed.

Figures 1 through 4 represent the regression analysis of 6,012 animals whose average weight was 537 lbs ± 40 lbs. with an average pen size of 158 animals. They entered the feedyard in June of 1981.

Figures 5 and 6 represent the multiple regression of 5 groups of animals comparing shrink, morbidity and mortality. Note for clarity the figures do not depict pens of cattle with zero morbidity or mortality, however the morbidity and mortality of all pens are used in the regression equation.

The regression of these groups had an $r^2$ value of between .15 to .25 indicating 15 to 25% of the morbidity and mortality can be accounted for solely on excessive shrink. Similar values were found for cost of gain.

These values when used to calculate break evens for pens of cattle are illustrated in Figure 7.

In this example the shrink increased the purchase cost from 71¢/cwt to 77¢/cwt.

These values were derived from 500 to 700 lb. South Eastern cattle delivered during the second quarter of the year. Analysis of heavier cattle suggest they are not as susceptible to shrink or illness. Additionally it seems shrink may be more important in the fall deliveries from the southeast.

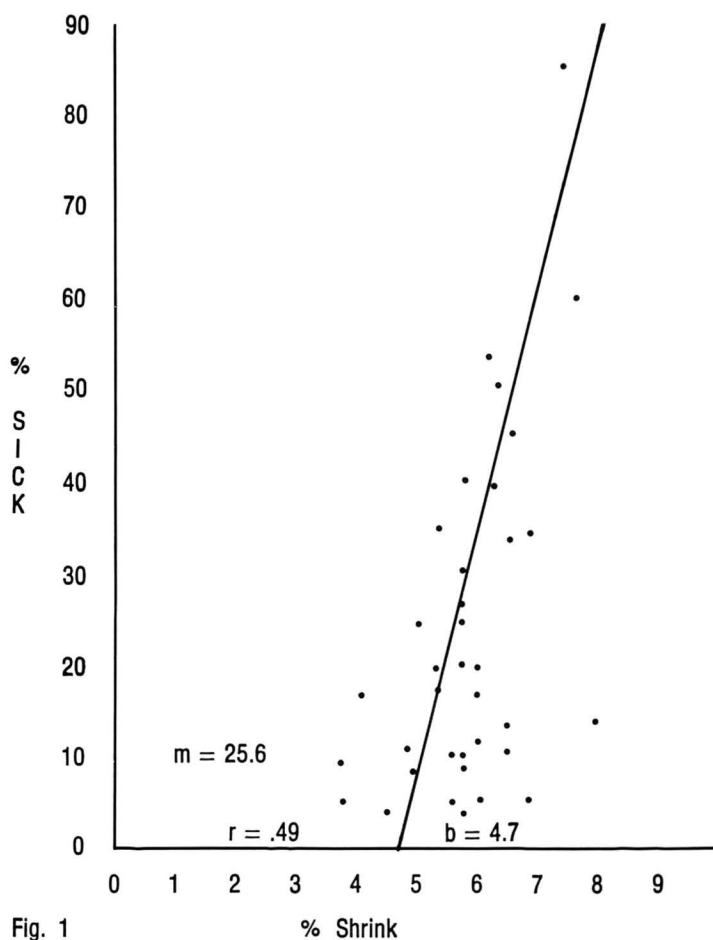**In order that we might address the importance of other**



Fig. 1      % Shrink

June B, 81   N = 6012     wt. = 537 ± 40 lb.     Pen size = 158

The slope (m) represents the observed increase in mobidity of 25.6% for every 1% increase in body weight shrink above 4.7% baseline shrink.

**controllable variables we began a year ago to sort cattle by order buyers, geographical location, marketing channels, and previous feeding backgrounds. Our information to date suggests order buyers and geographical location to be the most important factors influencing morbidity and mortality.**
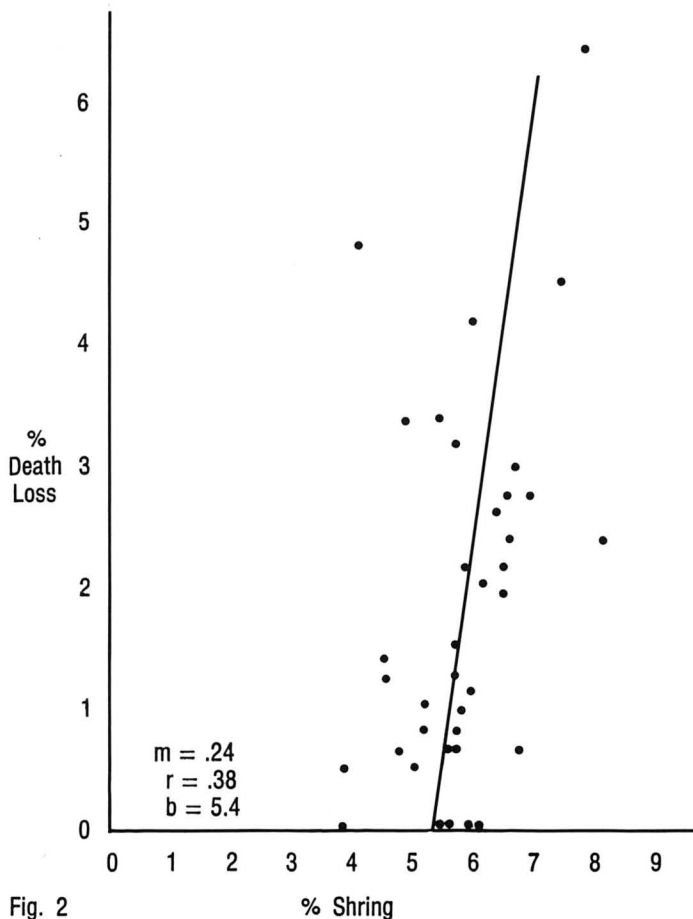
Fig. 2       % Shring

June B, 81   N = 6012     wt. = 537 ± 40 lb.     Pen size = 158

The slope (m) represents the observed increase in death loss of .24% for every 1% increase in body weight shrink above a 5.4% baseline shrink.



Fig. 3       Cost of Gain

June B, 81   N = 6012     wt. = 537 ± 40 lb.     # = 158/Pen

The slope (m) represents the observed increase of $ .93 for every 10% increase in morbidity.

## Grade and Yield Sales

An additional loss suffered in the cattle feeding industry is the sale of animals on a grade and yield basis.

You can break our grades and yield cattle into 3 groups:

1. Those that are sorted off the pens by the fat cattle buyers.

   Those animals are frequently left up to our cattle shipping/receiving department to do the sorting for them.

2. The hospital sorts/cowboy sorts.

   These are the ones that are pulled out of the pen because the pen rider notices that the animal is not growing with the rest of the pen. Or upon examination something is found that makes us feel it would be better economics to get rid of him now rather than take a chance of losing more later on.

3. The emergencies include prolapses, some broken legs or calving injuries and some tracheal abscesses.

The first category compromises about 60% of our grade and yields. The second category compromises about 30% of our grade and yields, and 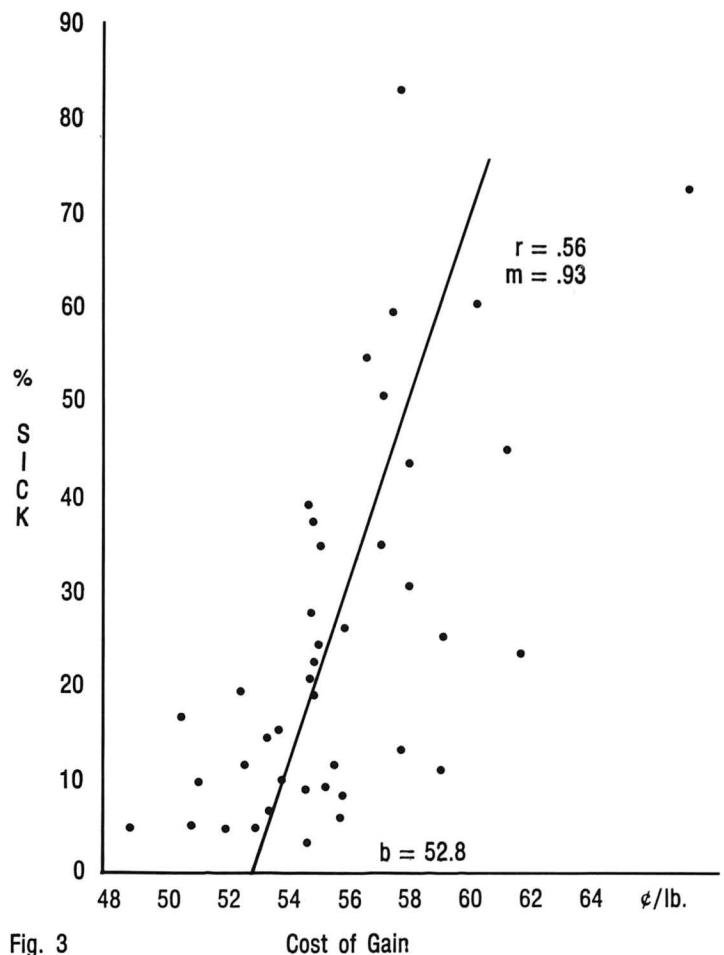about 10% will be because of an emergency status. The grade and yield basis on any particular pen or group of pens in the yard at any one time will be approximately equal to the mortality in that pen. That approximation leaves off the extremes. You may not have any die, but you'll have one break a leg. Or you may have 3% die, but you don't have that many grade and yields. Over time we have come to expect 0.25% to 1% grade/yield sales.

Looking at the regression analysis figures for about 25,000 head of cattle that we ran through in a 3 year period of time showed us that grade/yield sales cost us about half a dollar on the cost of gain. If it cost 50 cents, it cost you 50.5 cents to feed the calf.

The kill floor losses of our grade and yield will vary drastically, depending on which group they come from. In the worst category we're probably talking about not more than 1 in 10 of our losses that are condemned in our emergency group. Our overall losses throughout have been less than 100th of 1%. Three years ago when we instituted a program to figure out where the losses were coming from so that we could correct them, our losses at that time were several times higher than they are now.
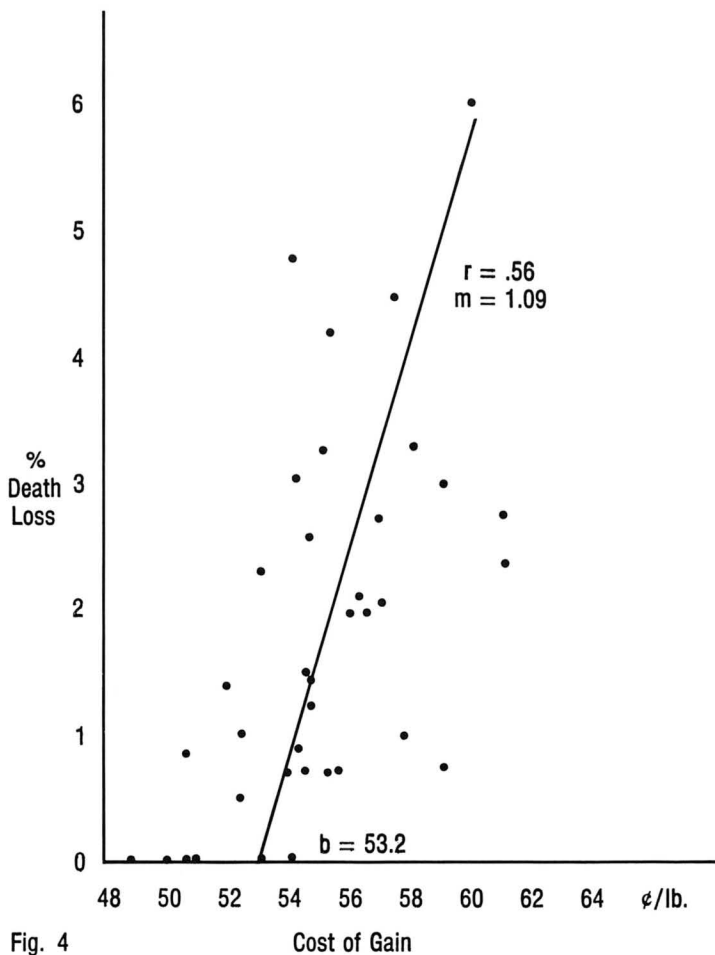
Fig. 4          Cost of Gain

June B, 81    N = 6012      wt. = 537 ± 40 lb.     Pen size = 158

The slope (m) represents the observed increase of $1.09 cost of gain for every 1% increase in death loss.

The main problem we find on grade and yields from group 1 is respiratory disease, (lung abscesses, adhesions, and various things that result from previous respiratory diseases). We also find liver cripples from that group that we identify as a reason for animals not to feed out with the rest of the pen. Most are chronic passive congestion, a few are liver flukes and a very few abscesses.

In the second category, the ones pulled from the pen for early sale are tracheal abscesses which are a big problem. It is not diphtheria. The most common isolet is *Pasteurella multocidia,* which is sensitive to all antibiotics. Corynebacterium is also frequently involved. In those not treated with an antibiotic, *Hemophilus somnus* is commonly isolated.

**Lameness is the next big cause for early sale. We just came out of a wet, muddy year and we started having more lameness and more musculoskeletal problems than we had had in the previous three years. Additional reasons for early sale include bloat, water bellies, and chronic pneumonias.**

The average days on feed in the first category (those pen sorted by the buyers) is 142 days for the last year. The second category, or those sorted by the hospital crews and cowboys, was 101 days on feed. This figure varies for 60 to 130 days depending on the quality of examination that is given to animals brought to the feedlot hospital after 45 days on feed. Our people may watch the animal a day or two until we can make a good diagnosis. This is helping us sort some animals that would have been found in group 1 into group 2 early sales before the animal can become a liability to the owner. The third category (our emergencies) is 87 days.

When we looked at all the grade and yields that we had and looked at what the packer/buyer paid us for them, as compared to the top dollar cattle sold that day, we found that in that first group we lost from 2 to 9 dollars. There was a yard difference in our organization on what the packer/buyer would pay for cattle sorted off his pen, but the average was about $5. In the second category (the ones that we sorted off because they weren't preforming with the pen), we lost $22 a hundred weight off the finishing price. A 70¢ calf brought 48¢. The third category (the emergencies and those condemned) showed that we lost $38 per animal.

The weight of the animals we lost in the first category was 860 pounds. They were lighter than their perspective pen mates by 210 pounds. That means that we have cattle that are going 150 days in our yards that nobody is pulling out until he is 210 pounds below his pen mates at the time of shipping. I know that nobody likes to look at cut sales, but that's an expensive ways to handle them for the owner's sake. The second category was where the cowboys were sorting off. Our average for the 3 yards is 754 pounds. The difference in the weight from those of their pen mates was 132 pounds behind their pen.

The third category was 775 pounds and 82 pounds short of their pen.

There are 3 ways to look at the cost (Figure 10). First look at the 5¢ average on the first category, the selling price against their pen would have been $11. If you look at the weight loss at 65¢, you'd have $136 total. You can stick them both on there and you'd come up with $147 that the calf brought you less than what he should have. Against a pen of 147 calves, that would be a dollar a head. If you look at the cost of gain (and I think that's the bottom line) it doesn't look so bad. We're talking about 23¢. Now that 23¢ is if the pen fed for $50 per hundred weight, it would have fed to $50.23 a hundred weight.

In the second category it cost us $29 from the top selling price, plus he was 132 pounds short of his pen, which accounted for another $85. The total of the two come to $114. While that's a lot of money, but it's not as bad as we lose on the ones sorted by the buyer. His cost of gain on the average of our operation, based on us only having 30% of our grade and yields going out that way, was 9¢. So at $50 it would have cost $50.09 per head a hundred weight.

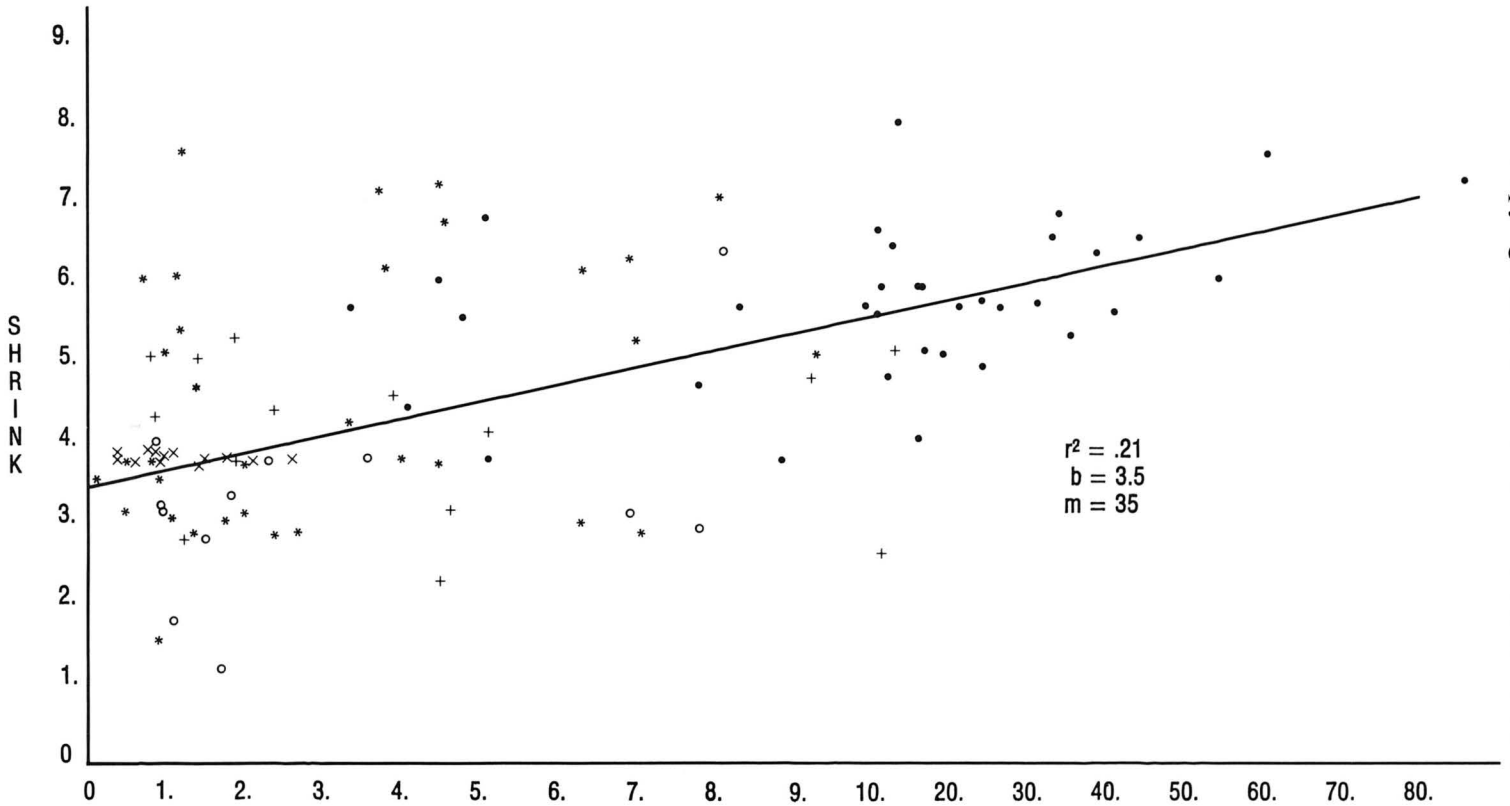The third category was $31, plus an additional $50 weight short of their pen, with a 2¢ cost of gain.

Figure 5

Morbidity
Shrink vs Pulls

| | |
|---|---|
| ○ Heavy Cattle | 1171 |
| ● June Cattle | 5942 |
| * Light Cattle | 3829 |
| × 4.40 Corn Cattle | 4315 |
| + ECF Cattle | 2454 |

Total 17711/21874 = 81% not zero

The slope (m) represents the logarithmic increase of 5% in morbidity for the 1st 1% increase in shrink and 35% increase in morbidity for each 1% above 2% base shrink of 3.5% body weight. Thus going from 5.5% to 6.5% shrink increased our observed morbidity by 35%.

Figure 6

Mortality
Shrink vs Death Loss

| | |
|---|---|
| ○ Heavy Cattle | 694 |
| ● June Cattle | 5469 |
| * Light Cattle | 2626 |
| × 4.40 Corn Cattle | 2360 |
| + ECF Cattle | 1323 |

Total 12472/21874 = 57% not zero ploted

The slope (m) represents the observed increase in mortality of .51% for each 1% increase in body weight shrink above a base shrink of 3.1%.
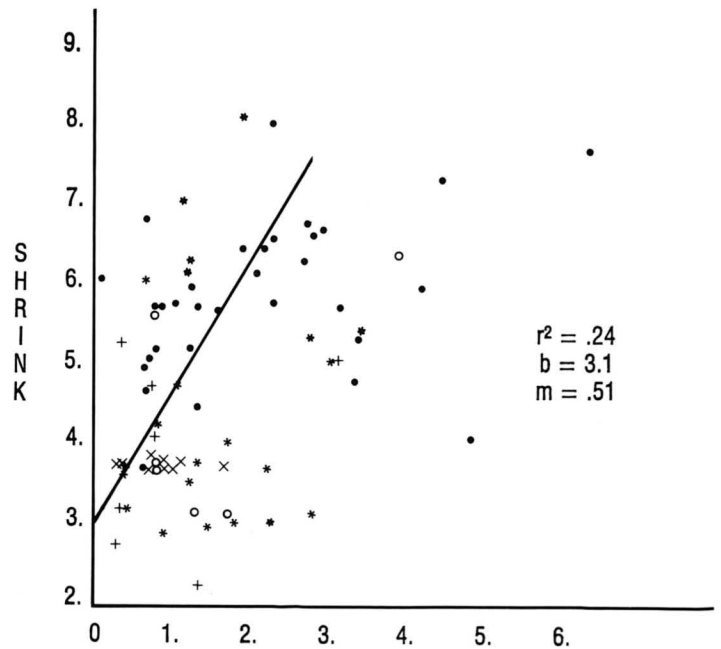
Figure 7

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                    Cost of 550 lb. Calf
              @ 65¢ = 357.50 + 9.65 del
      Shrink          − 4%          − 6%
Del wt =             528 = 69.5     517 = 71¢
Death loss = ??       1% = 70.2      4% = 73.8
(45 DOF) =1.30        —    70.8      —    75.2
Sickness = ??        10% = 71.0     40% = 77.0
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Figure 8.

| Groups | Cause | On Date of Sale | | Compared To Penmates Solid as Fats | |
| --- | --- | --- | --- | --- | --- |
| | | Days On Feed | Average Weight | Diff in $ /cwt. | Diff In Weight |
| 1. Fat Cattle sorts (60%) | Respiratory, Liver, Kidney | 142 | 860 lb. | −$5 | −210 lb. |
| 2. Hospital cowboy sorts (30%) | Tracheal abs., lame, bloat, urinary cal., chronic resp. | 101 | 754 lb. | −$22 | −132 lb. |
| 3. Emergency sorts (10%) | Prolapse, H.B., downers, fract. bones, dystocia | 87 | 775 lb. | −$38 | −82 lb. |

Figure 9

| | $ Loss - Price differential | | $ Loss - Weight differential* | | $ Loss- -When sold Grade/yield | Increased** cost of gain |
| --- | --- | --- | --- | --- | --- | --- |
| 1. | $11/head | + | $136/head | = | $147/head | 23¢ |
| 2. | $29/head | + | $ 85/head | = | $114/head | 9¢ |
| 3. | $31/head | + | $ 50/head | = | $ 81/head | 2¢ |

*assumes 65¢/lb. selling price.

**assumes 400/lb. gain and $50 cost per cwt. gain on normal penmates.