How to Figure MARGINS

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While drinking coffee in the coffee shop at Tovrea's the other morning we overheard the following discussion between two veteran cattle feeders.

"How much are you going to pay for feeder cattle this year, John?"

"I'm not sure yet, Frank. I got good gains on my cattle last year but still lost money. I guess I just didn't have enough margin when I bought."

"How much margin do you figure you need, John?"

"Well sir, Frank, I usually figure around three or four cents a pound on steers ought to be enough in most years; but by golly, I don't know exactly how much I should have this year. Hay is a little cheaper than last year, but barley is about the same. I wish there were some easy way to figure what margin a man needs to break even."

How Can You Figure Margin?

Their conversation aroused our curiosity, so we decided to see if we could find a simple way to figure price margins. As all cattle feeders know, "margin" is the difference between the sale price per pound of the slaughter animals and the purchase price per pound of the feeder animal. The margin that the cattle feeders are most interested in is that which is necessary to "break even." Some margin is necessary whenever the cost per pound of gain *exceeds* the selling price per pound of the slaughter animal.

After making several calculations we found that the necessary margin depends on four things: (1) initial weight of the animal at the feedlot, (2) number of pounds of gain expected to be put on, (3) expected cost per pound of gain, and (4) expected selling price of the finished animal. Then the margin can be figured by using the following formula:

$$\text{Necessary margin} = \frac{\text{Pounds of gain} \times \text{Cost per lb. of gain minus selling price per lb.}}{\text{Initial weight of feeder}}$$

To illustrate, let's assume we have:

(1) Initial weight of feeder — 700 pounds
(2) Pounds of gain to be added — 300 pounds
(3) Expected cost of gain — 25.5 cents per pound
(4) Expected selling price of finished animal 130 days later — $21.50 per cwt. or 21.5 cents per pound.

$$\text{Then the necessary margin} = \frac{300 \times [25.5 - 21.5]}{700} = \frac{300 \times 4.0}{700} = \$1.71 \text{ per cwt.}$$

If you subtract this from the selling price of $21.50 it means that you could pay up to $19.79 per hundredweight for a feeder steer *delivered* at your feedlot and still break even. However, if you want to do a little better than just break even, we must add to the necessary margin to allow for an expected profit. For a $10 per head profit, divide this by the purchase weight of the animal, in our example 700 pounds. Thus, $\frac{\$10}{700} = \$1.43$. Then add the $1.43 to the $1.71 to arrive at a total margin of $3.14. Then our top feeder price (which allows a $10 profit per head) becomes $18.36 ($21.50 − $3.14).

Incorporated into a formula this becomes:

$$\text{Margin (including profit)} = \frac{\text{Pounds of gain} \times \text{Cost per lb. of gain minus selling price per lb.} + \text{Profit per head}}{\text{Initial weight of animal}}$$

Now to apply the above formula to the same steer we used up above:

$$\text{Margin (including profit)} = \frac{[300] \times [\$.255 - \$.215] + [\$10]}{700} = \frac{[300 \times \$.04] + \$10}{700}$$

$$= \frac{[12 + \$10]}{700} = \frac{\$22}{700} = \$3.14 \text{ per cwt.}$$

For a $15 profit per head you need to add $\frac{\$15}{700} = \$2.14$ to the necessary margin ($1.71) or $3.85.

$$M = \frac{300 \times 25.5 - 20.0}{700} = \frac{1650}{700} = \$2.36 \text{ per cwt.}$$

This would mean a top purchase price of $17.64 per hundred to break even or $16.21 to make a profit of $10 per head. Any freight charges on the animals to the feedlot, as well as any commission charges paid to order buyers, will have to be deducted to give the top price that you could bid for the feeders at their source. Often the profit or loss on cattle is determined at the time they are bought. If you pay too much for them, no matter how good a job of feeding you do, you will still lose money.

If you expect the price of the fat steers four to five months hence to be $20 rather than $21.50, then the necessary margin becomes

In the above example we used a 700-pound feeder steer, a fairly typical weight for steers going on feed. Short-fed cattle in Arizona are normally on feed for 100 to 150 days and will gain from 1.75 pounds to 2.75 pounds per day. For easy figuring we used a gain of 300 pounds during the 130 days or 2.31 pounds per day.

Costs Based on Study

Our 25½ cents cost per pound of gain was based on a study of cattle feeding costs during the 1955-56 feeding season. This would cover all feed as well as labor, power, mixing and grinding expense, normal veterinary expense, medicine, personal property taxes, brand in-

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Finger-tip blood is being taken (in the photo at left) from these attractive U of A volunteers. Left to right, Anita Hand, Helen Preciado, Mrs. Mildred Staley, a graduate fellow in nutrition who is taking the samples, and Iris Cloudt.

Home Economics School Studies

Vitamin C Requirements

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In the School of Home Economics we are studying the Vitamin C (ascorbic acid) requirement of young women of southern Arizona.

This vitamin is needed by practically every cell of the human body. It cannot be manufactured by the body. There is ample evidence that good health is directly dependent upon an optimal supply. Therefore, the foods we eat should have an ample supply.

Many Diets Poor

If the amount is too small, symptoms of deficiency quickly develop. This occurs entirely too frequently in our population. Too often the family diet is inadequate and poorly planned, even though a diet containing enough of each of the required vitamins, minerals and other nutrients is not necessarily an expensive one.

Increasing the intake of Vitamin C increases the amount in the blood up to a saturated level. Body tissues store as much as they can hold and the amount left over is lost through urinary excretion. Therefore, the level of Vitamin C in the blood serves as a good guide to body storage. This storage is relatively small even with a high intake. It is quickly depleted during periods of decreased intake or increased need.

Body stores of this vitamin are rapidly diminished under various kinds of physical stress. Because of the long summers of southern Arizona, with exposure over long periods of time to high temperatures, the possible effect of heat stress becomes of special interest.

Four Volunteers

In the study we are making, four college women volunteers are living on a diet which contains, within slight variation, a constant amount of Vitamin C. Relatively long periods of time are needed during the winter and summer seasons to measure the effect of this stress. Therefore, small samples of blood are being taken continuously for study during these periods. A few drops from the finger tip of each student volunteer are sufficient. These are analyzed by micro technique.

If there should occur, on the constant intake of the vitamin, a significant change in blood level it would be apparent that body requirement has been altered or that the vitamin was destroyed in some manner.

Vitamin C Can Be Lost

If the level is decreased in summer then more ascorbic acid must be taken to maintain the higher level. Unless precautions are taken, Vitamin C can be easily lost during storage of food and its preparation for the table. It is poorly distributed in foods in general. It is richly supplied in such foods as citrus, cantaloup, lettuce, and other green vegetables.

Perhaps through experimentation such as this we can help to maintain for our people during the fatiguing summer months that vigorous health and feeling of well being which most of us experience during other months of the year.

MARGINS

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spection, Beef Council and other fees. Feed alone accounts for about 85 percent of the cost. While the 25 to 26 cents per pound of gain is a typical one for the kind of cattle described here, the cost may vary for individual feeders. If the feeder has his own feed cost records he should use those in determining the necessary margin.

Finally we needed to know the expected selling price of the finished steer. This is one of the most important estimates a cattle feeder must make before putting cattle on feed. For this illustration we assumed the steer would grade average choice when finished. Choice 900 to 1,100 pound steers averaged $21.50 f.o.b. Arizona feedlots during the week ending last July 21. This is not a forecast of what slaughter prices will be but is used here for illustrative purposes only. You may not have perfect knowledge of these factors at the time cattle are bought but you can make some good estimates as to what they will be.

Consider "Expected" Sale Price

Remember, your finished steer will be sold four to five months from now, so your expected sale price should be your estimate of the selling price at that time. Therefore, if you have valid reasons to expect the price to go up or down between now and the time the finished steer is ready to sell, you should take that into account. Otherwise present slaughter prices may be the best indicator of the expected price four to five months later.

Some feeders even discount present slaughter prices somewhat to allow for risks due to price changes.