



Common VFD Calculations



Abbreviations:

g = grams
mg = milligrams
BW = body weight
lb = pound
kg = kilogram

Conversion Values:

1000 mg = 1 gram
2.2 pounds = 1 kilogram
2000 pounds = 1 ton

INFORMATION NEEDED:

1

Daily drug dose:

For example: $\frac{10 \text{ mg of drug}}{\text{lb (BW)}}$ | "10 milligrams of drug for every pound of body weight"

2

Weight of the animal (estimated):

For example: Calf weighing 100 lb BW

3

Volume of feed the animal eats daily in pounds:

Note: May be calculated as a percent (%) of body weight based on animal which can be found in feed intake tables

For example: If a calf is estimated to eat 1% of its body weight, 1% of 100 lb is 1 lb, so this calf should receive 1 lb of feed daily.



Common VFD Calculations, *cont.*



CALCULATIONS:

Note: This series of calculations assumes that the calf is consuming the VFD feed as the sole ration



To **calculate the daily dose** of the drug using the example on the previous page:

$$\frac{10 \text{ mg of drug}}{\cancel{\text{lb BW}}} \times 100 \cancel{\text{ lb BW}} = 1000 \text{ mg of drug required daily}$$



To **calculate the concentration** of drug that must be included in the VFD feed to provide the correct daily dose:

$$\boxed{\frac{1000 \text{ mg drug}}{\cancel{\text{day}}} \times \frac{1 \cancel{\text{ day}}}{1 \text{ lb feed}}} = \boxed{\frac{1,000 \cancel{\text{ mg drug}}}{\cancel{\text{pound feed}}} \times \frac{2,000 \cancel{\text{ pound feed}}}{\text{ton}} \times \frac{1 \text{ gram}}{1000 \cancel{\text{ mg}}}} = \frac{2,000 \text{ g of drug}}{\text{ton of feed}}$$

drug dose X feed intake Conversion of units to grams ton



Common VFD Calculations, *cont.*



Example 1: Calculating the concentration of a VFD drug that needs to be added to a ton of feed

1	Drug dose:	10 mg/lb BW/day
2	Weight of the animal:	250 pound calf
3	Daily feed intake (estimate):	2.8% of body weight (based on NRC guidelines to equal 7 pounds of feed daily (0.028 x 250 pounds = 7 pounds feed))
4	Daily drug dose:	$\frac{10 \text{ mg drug}}{\text{pound BW}} \times 250 \text{ pound calf} = 2500 \text{ mg drug/calf/day}$
5	Volume of drug in grams of drug per ton of feed: $\frac{2500 \text{ mg drug}}{\text{day}} \times \frac{1 \text{ day}}{7 \text{ pounds feed}} = \frac{357 \text{ mg drug}}{\text{pound feed}} \times \frac{2000 \text{ pound}}{\text{ton}} \times \frac{1 \text{ gram}}{1000 \text{ mg}} = \frac{714 \text{ grams drug}}{\text{ton of feed}}$ drug dose X feed intake (est.) Conversion of units to grams ton	



Common VFD Calculations, *cont.*



Example 2: Calculating how many cattle can be fed from a 50 pound bag of VFD feed with a drug concentration of 3.5g/pound

1	Drug dose (note here that the dose is on a “per animal” or “per head” basis not on a BW basis):	$\frac{350 \text{ mg drug}}{\text{head}}$
2	Drug concentration:	$\frac{3.5 \text{ grams drug}}{\text{pound}}$
3	Conversion of the drug from $\frac{\text{grams}}{\text{pound}}$ to $\frac{\text{mg}}{\text{pound}}$:	$\frac{3.5 \text{ grams}}{\text{pound}} \times \frac{1000 \text{ mg}}{\text{gram}} = \frac{3500 \text{ mg}}{\text{pound}}$
4	Calculate drug dose per head (per cow):	$\frac{350 \text{ mg}}{\text{head}} \times \frac{1 \text{ pound}}{3500 \text{ mg}} = \frac{0.1 \text{ pound}}{\text{head}}$
5	Amount to feed for 10 head of cattle:	$\frac{0.1 \text{ pound}}{\text{head}} \times \frac{10 \text{ head}}{1} = 1 \text{ pound}$
6	How many cattle can be fed from a 50 pound bag of the VFD drug (3.5 g/lb)?	$\frac{50 \text{ pound}}{\text{bag}} \times \frac{1 \text{ head}}{0.1 \text{ pound}} = \frac{500 \text{ head}}{\text{bag}}$