

Medicated Feed Additive Serial Dilutor Calculator Guide Prepared by Shane Gadberry, Professor – Animal Science

The **Medicated Feed Additive Serial Dilutor Calculator** is an educational tool for calculating the quantity of a medicated feed additive for a feed group and applying a one, two, or three step sequential dilution to achieve a more manageable feed mixing and delivery rate.

1. Enter the Target Medicated Feed Intake and rate (Drop-Down Menu) as either mg/animal or mg/lb weight.

| Target Medicated Feed | Select from Drop- | | | | |
|-----------------------|-------------------|---|--|--|--|
| Intake | Down Menu | | | | |
| | mg/animal | ~ | | | |

- 2. Herd and Feed Inputs
 - a. Enter the Number of Animals (animals) in the feeding group.
 - b. Enter the Average Size (lbs/animal) of animals in the feeding group.
 - c. Enter the Total Daily Supplemental Feed Rate (lb/animal).
 - d. Enter the Target Batch Mix Size (lb).
 - e. Enter the Concentration of the Medicated Feed Article (g/lb) as stated on the label.

| Herd and Feed inputs | | | | | | | | | |
|--|---|------------|---|---|-----------|--|--|--|--|
| Number of Animals in the Feeding Group | | animals | Target Daily Supplemental Feed Rate | | lb/animal | | | | |
| Average Size of animals in the feeding group | | lbs/animal | Total Daily Supplement Feed for the Group | 0 | lb/d | | | | |
| Target Daily Medicated Feed Intake | | mg/animal | Target Batch Mix Size | | lb | | | | |
| Dose Per Unit of Animal Weight | 0 | mg/lb | Number of Days Feeding Per Batch | 0 | days | | | | |
| Concentration of Medicated Feed Article g/lb | | | | | | | | | |

3. Dilutions - Up to 3 serial dilutions are available (Dilute 1, Dilute 2, and Dilute 3). For dilute 1, enter the pounds of concentrated medicated feed from the bag to be mixed with a non-medicated feed of similar particle size to achieve the first level of dilution. A one-to-one dilute for example will reduce the medicated feed concentration by 50%. For Dilute 2, the medicated feed from Dilute 1 is further diluted with a non-medicated feed to achieve an even more dilute form of a medicated feed mix. The Dilute 2 mix can be further diluted to achieve Dilute 3 mix. Subsequent dilution amounts of a medicated feed should not exceed previous dilution total.

| Dilute 1 | | | Dilute 2 | | Dilute 3 | | | |
|---|-------|------|--|-------|----------|--|--|--|
| Amount of concentrated medicated feed | 1 | lb | Amount of DILUTE 1 Medicated Feed | 1 | lb | Amount of DILUTE 2 1 Ib Medicated Feed | | |
| | | | | | | Amount of non-medicated [1] Ib | | |
| Amount of non-medicated feed supplement for dilution | 1 | lb | Amount of non-medicated feed supplement for dilution | 1 | lb | Concentration of Final 0.000 g/lb Dilute 3 Medicated Feed | | |
| Concentration of Final Dilute 1 Medicated Feed | 0.000 | g/lb | Concentration of Final Dilute 2 Medicated Feed | 0.000 | g/lb | If the total amount of Dilute 1 is used to make Dilute 2 and the total amount of | | |
| Total Amount Dilute 1 | 2 | lbs | If the total amount of Dilute 1 is used to make Dilute 2, available Dilute 2 = | 4.000 | lbs | and the total amount of Dilute 2 used to make Dilute 3, available Dilute 3 = | | |

4. Mixing Summary - Determine which option [Option 1 (full strength), Option 2 (Dilute 1), Option 3 (Dilute 2), or Option 4 (Dilute 3)] is most practical to blend with the final non-medicated feed for daily feeding.

| Mixing Summary | | | | | | | | | |
|---|---|-------|---------------------|-------|-----------------|---|--|--|--|
| | Calculated Concentration Batch | 0 | mg/lb | | | | | | |
| | Quantity that would be ne | | Ib batch | ı mix | | | | | |
| | Mixed Feed Options | | Medicate ed Lbs. | d | Total Feed Lbs. | | | | |
| Option 1 | Fully Concentrated Medicated Feed Article | 0.000 | + | 0 | | - | | | |
| Option 2 | Dilute 1 Medicated Feed Mix | 0.000 | + | 0 | | = | | | |
| Option 3 | Dilute 2 Medicated Feed Mix | 0.000 | + | 0 | | = | | | |
| Option 4 | Dilute 3 Medicated Feed Mix | 0.000 | + | 0 | | = | | | |
| *Choose the number of dilutions for a final mix option that is most accurate and practical. | | | | | | | | | |

5. Unit Converter - convert medicated feed options from pounds to either ounces or grams for weighing and mixing.

Example 1.

The objective is to provide **200 mg per animal** of a medicated feed additive to **60** stocker steers weighing **550 pounds** that will be supplemented at **5.5 lbs supplement per calf**, daily. A total of 2,000 lbs feed will be mixed per feed batch.

The label of the medicated feed purchased indicates **90 grams (g)/lb** active ingredient.

Using a series of 3 dilutions at a 1:2 dilution rate, dilution 1 would have a concentration of 30 g/lb, dilution 2, 10 g/lb, and dilution 3, 3.333 g/lb.

The calculated concentration of medicated feed per batch is 36.364 mg/lb for each of the 4 blending options. Multiplying the medicated feed 36.364 mg/lb x 5.5 lb/animal daily feeding rate equals the target 200 mg/animal.

Blending option 1 would require 0.808 lb of the concentrated medicated feed added to 1999.192 lb nonmedicated feed to get to the final 2000 lb batch size.

Blending option 4 would require 21.821 lb of the 3rd Dilution Level added to 1978.179 lb feed to get to the final 2000 lb batch size.

If starting with 1 lb of concentrated medicated feed in Dilute 1 and using a 1:2 dilution ratio for Dilute 1, Dilute 2, and Dilute 3, the final Dilute 3 would yield 27 lbs of a 3.33 g/lb medicated feed mix. If Dilute 3 is used to produce Option 4 feed mixing, there would be 5.179 lb Dilute 3 remaining after mixing 1 2,000 lb feed batch.

| Dilute 1 | | Dilute 2 | | Dilute 3 | | | | | | |
|---|-----------------------------|---|--|-----------------------|----------|--------------------------|--|--|---------|------------|
| Amount of concentrated medicated feed | 1 | lb | Amount of DILUTE 1 Medicated | | 1 lb | | Feed | UTE 2 Medicated | 1 | lb |
| Amount of non-medicated feed supplement for dilution | 2 | lb | Amount of non-r supplement for a | | 2 | lb | supplement fo | of Final Dilute 3 | 2 3.333 | lb g/lb |
| Concentration of Final Dilute 1 Medicated Feed | 30.000 | g/lb | Concentration o Medicated Feed | f Final Dilute 2 | 10.000 | g/lb | used to make total amount of | ount of Dilute 1 is Dilute 2 and the of Dilute 2 used to | 27.000 | lbs |
| Total Amount Dilute 1 | 3 | lbs | If the total amou used to make Di Dilute 2 = | | 9.000 | lbs | make Dilute 3, available Dilute 3 = | | | |
| Mixing Summary Calculated Concentration of Medicated Feed Per 38.384 mg/lb Batch | | | | | | | | | | |
| | | Quantity that would be needed per 2000 lb b | | | | | ch mix | | | |
| | Mixed | l Feed Op | otions M | edicated Feed Lbs. | , | Non-Medicat Feed Lbs. | | Total Feed Lbs. | | |
| Option 1 | Fully Concentrat | ed Medica | ted Feed Article | 0.808 | + | 1999.192 | = | 2000 | | |
| Option 2 | Dilute 1 Medicated Feed Mix | | 2.424 | + | 1997.576 | - | 2000 | | | |
| Option 3 | Dilute 2 Medicated Feed Mix | | 7.273 | + | 1992.727 | - | 2000 | | | |
| Option 4 | Dilute 3 Medicated Feed Mix | | 21.821 | + | 1978.179 | - | 2000 | | | |
| *Choose the number of dilutions for a final mix option that is most accurate and practical. | | | | | | | | | | |

Example 2.

The objective is to provide **0.5 mg/lb weight** of a medicated feed additive to **50 cows** weighing **1,200 pounds** that will be supplemented at **1 lb per cow**, daily. A total of 50 lbs feed will be mixed per feed batch.

The label of the medicated feed purchased indicates **50 grams (g)/lb** active ingredient.

Using a series of 3 dilutions at a 1:1 dilution rate, dilution 1 would have a concentration of 25 g/lb, dilution 2, 12.5 g/lb, and dilution 3, 6.25 g/lb.

The calculated concentration of medicated feed per batch is 600 mg/lb for each of the 4 blending options. Multiplying the medicated feed 600 mg/lb x 1 lb/animal daily feeding rate equals the target 600 mg/animal (1,200 lb weight x 0.5 mg/lb weight).

Blending option 1 would require 0.6 lb of the concentrated medicated feed added to 49.4 lb nonmedicated feed to get to the final 50 lb batch size.

Blending option 4 would require 4.8 lb of the 3rd Dilution Level added to 45.2 lb feed to get to the final 50 lb batch size.

| Dilute 1 | Dilute 2 | | | | Dilute 3 | | | | | |
|---|---|-----------|--|----------------------|----------|--------------------------|---|---------------------------------|-------|------|
| Amount of concentrated medicated feed | 1 | lb | Amount of DILUT Feed | | | | | lb Ib | | |
| Amount of non-medicated feed supplement for dilution | 1 | lb | Amount of non-n supplement for d | | 1 | lb | supplement fo | r dilution of Final Dilute 3 | 6.250 | g/lb |
| Concentration of Final Dilute 1 Medicated Feed | 25.000 | g/lb | Concentration of Medicated Feed | Final Dilute 2 | 12.500 | g/lb | If the total amount of Dilute 1 used to make Dilute 2 and the total amount of Dilute 2 used make Dilute 3, available Dilut | | 0.000 | lbs |
| Total Amount Dilute 1 | 2 | lbs | If the total amoun used to make Dil Dilute 2 = | | 4.000 | lbs | | | | |
| Mixing Summary | | | | | | | | | | |
| | Calculated Concentration of Medicated Feed Per 600.000 m Batch | | | | | | | | | |
| | Quantity that would be needed per | | | | 50 | lb bat | ch mix | | | |
| | Mixed | Feed O | otions Me | dicated Feed Lbs. | N | lon-Medicat Feed Lbs. | | Total Feed Lbs. | | |
| Option 1 | Fully Concentrat | ed Medica | ted Feed Article | 0.600 | + | 49.4 | = | 50 | | |
| Option 2 | Dilute 1 Medicated Feed Mix | | 1.200 | + | 48.8 | = | 50 | | | |
| Option 3 | Dilute 2 Medicated Feed Mix | | 2.400 | + | 47.6 | - | 50 | | | |
| Option 4 | Dilute 3 Medicated Feed Mix | | 4.800 | + | 45.2 | = | 50 | | | |
| *Choose the number of dilutions for a final mix option that is most accurate and practical. | | | | | | | | | | |

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