



Simple Budgeting and Pricing Calculations for Backyard Hens

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Introduction

Whether you are thinking of starting your own backyard flock, or trying to determine how to price the eggs or meat from an established flock, knowing expenses is important. An enterprise budget is a projection of all costs and returns for a single enterprise (Kay, 2008); for example, a chicken flock. You can use an enterprise budget to calculate potential profits, a break-even price or to simply keep track of expenses. An enterprise budget also can help you consider adding or making changes to your operation.

Enterprise Budgeting

Enterprise budgets can be easily calculated on a per-coop basis. Since it is difficult to determine in most backyard setups how much feed, or the number of eggs an individual bird is consuming, a per-coop option is best. If you have multiple coops, simply combine the information across coops. It's important to note the example is set for three years. This is the average productive lifespan of a commercial bird. By setting the time frame to three years, it is also assumed three years is the amount of time it will take to "pay-back" the fixed costs. To calculate profit without fixed costs—for example once you have accounted for those costs in previous years—simply set the fixed costs to zero. Many backyard chickens live much longer than three years, especially when measures are taken to avoid predation.

It is important to include all of the costs associated with your flock, even when the birds are not laying eggs. Variable costs are usually presented on a per-animal basis and should be multiplied to represent the cost for the set of birds you own. A good example of a variable cost is the cost of feed. Fixed costs will include the expenses for items used year after year, for example the coop. For the example budget waterers and feeders are included as fixed costs as they can be used year after year and can service multiple birds up to the limit of your coop size. Profit is the revenue generated from the sales of eggs or meat (either salvage meat at the end of the hens productive life or male chicks raised for meat) minus the costs associated with the raising of chicks and maintenance of hens. It is important to note backyard hen operations will have costs and methods that can vary widely.

The breakeven price is the price you would need to charge to have zero profits (you would not make or lose any

money). For example, the breakeven price for eggs would be calculated as:

$$\text{Breakeven price (\$/egg)} = \frac{\text{Total cost (per coop of birds)}}{\text{number of eggs laid in that coop}}$$

Having a budget can help keep track of costs which then can be used to set prices. Make sure to note, if your costs are especially high, there may not be anyone who is willing to pay what you may need to charge to breakeven.

What to Consider

As mentioned earlier, there are many ways to start a backyard flock. Read fact sheet ANSI-8202, *Backyard Flock Production* (Zook and Payne) for more detailed information, but the basics will be discussed here as well. First, determine the size of the structure where the chickens will live. There are many options ranging from pre-made designs to build-it-yourself. Space needed inside the coop will depend on the size of the birds, but in general a minimum of 1.5 square feet per bird is needed. It may be necessary to consider the space available when choosing the breed of chicken, as breed is one determinate of size. Adjust the flock size to fit an existing structure or build a structure for the number of birds you want. If chickens remain confined, a run that allows for 8 feet to 10 feet per bird is required.

If beginning the flock with day-old chicks, a second housing structure called a brooder will be needed until they are 8 weeks to 12 weeks old. During this time, chicks are likely to need supplemental heat, so a heat source and a small thermometer is necessary. It's important to note that even at 12 weeks, there will be a significant size difference compared to mature birds and a transitional space may be needed until young birds are large enough to enter the current flock. If there is no existing flock and you begin with pullets, only the main housing is needed.

Birds of all ages require fresh water and feed. Young birds will require a starter ration, with mature hens requiring a layer ration. Mature hens will require roughly 0.25 pound of feed per day, chicks require 0.10 pound of feed daily. A good rule of thumb is to assume chicks will eat 13 pounds to 15 pounds of total feed from hatching until they first begin to lay at 6 months to 8 months of age. Artificial lights with a timer also can be included in the main coop to help stimulate

egg production. An absorbent bedding material is needed to keep the conditions in the house dry and to protect eggs. Any medicine or veterinary costs incurred should be included in the budget. A budget template is provided on page 3, with a blank version on page 4 to fill with your information. There are two versions of the budget available as an Excel spreadsheet, which can be found at <https://extension.okstate.edu/programs/backyard-poultry/media/backyard-chicken-budget-11-20-20.xlsx>. One version makes the same assumptions regarding food consumption etc. as the example on page 3, the version on page 4 does not make any assumptions and allows the producer to enter their own numbers or estimates.

Works cited

1. Kay, R.D., W.M. Edwards, and P.A. Duffy. "Partial budgeting." *Farm Management* (2008): 181-190.
2. Zook, D, and J. Payne. *Backyard Flock Production*. Oklahoma Cooperative Extension Service. ANSI-8202. <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-10303/ANSI-8202web2016.pdf>
3. Clauer, P. *Management Requirements for Laying Flocks*. Virginia Cooperative Extension (2009) pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/2902/2902-1085/2902-1085_pdf.pdf

Enterprise Budget on a Per-coop Basis

Variable costs

Variable Costs Associated with Hens

Number of Hens=H; D= number of days evaluated, set to 1,095 (three years) minus P amount of time chicks are in seclusion.

		Cost per unit	Total number of units needed	Total cost
Layer Feed	A	(\$/lbs)	$B^1=0.25*H*(1095-P)$ (lbs/D/coop)	$E=A*B$
Water	F	(\$/lbs)	$G^2=0.075*H*(1095-P)$ (gallons/D/coop)	$H=F*G$
Bedding	I	(\$/Cu.Ft.)	$J^3=0.375*((1095-P)/60)*H$ (cubic feet/D/coop)	$K=I*J$
Labor	L	(\$/hour)	$M^4=0.15*(1095-P)$ (Labor/D/coop)	$N=L*M$
Miscellaneous	O	(\$)		O

Variable Costs Associated with Chicks

C=Number of Chicks; P= number of days you have chicks in seclusion

Chicks	Q	(\$/chick)	C (number of chicks)	$R=Q*C$
Chick feed	S	(\$/lbs)	$T^5=0.1*C*P$ (lbs/P/coop)	$U=T*S$
Water	F	(\$/gallon)	$V^6=0.002*C*P$ (gallons/P/coop)	$W=F*V$
Bedding	I	(\$/Cu. Ft.)	$X^7=1.5*C$ (Cubic Feet/coop)	$Y=X*I$
Labor	Y	(\$/hour)	$Z^4=0.10*P$ (Labor/P/coop)	$AB=Y*Z$
Miscellaneous	AC	(\$)		AC

Fixed costs

Fixed Costs Associated with Hens

Coop	AD	(\$/unit)		AD
Feeder	AE	(\$/7 lb feeder)	$AF^8=H/15$ (feeders/coop)	$AG=AE*AF$
Drinker	AH	(\$/Gal. waterer)	$AI^8=H/10$ (drinker/coop)	$AJ=AH*AI$

Fixed costs associated with chicks

Chick housing	AK	(\$/unit)		AK
Feeder	AL	(\$/20 in feeder)	$AM^8=C/12$ (feeders/coop)	$AN=AL*AM$
Drinker	AN	(\$/5 qt. waterer)	$AO^8=C/12$ (drinker/coop)	$AP=AN*AO$
Heat lamp	AQ	(\$/unit)	AR (number needed to maintain heat)	$AS=AQ*AR$
Thermometer	AT	(\$/unit)	AU (number needed to measure temp)	$AV=AT*AU$

Total costs (TC)=E+H+K+N+O+R+U+W+Y+AB+AC+AD+AG+AJ+AK+AN+AP+AS+AV

Revenue

		Revenue per unit	Total numbers of units	Total Revenue
Eggs	AW	(\$/12)	$AX^9=(.5*H*(1095-P))/12$ number of eggs sold	$AY=AW*AX$
Meat (salvage)	AZ	(\$/bird)	BA= number of birds sold BB=AZ*BA	

Total Revenue (TR) = AY+BB

Profit = TR-TC

Breakeven price for eggs = TC/AY

Budget Assumptions

- 1 It is assumed the hens would consume 0.25 pound of food per day (Zook and Payne).
- 2 Although the water needed per hen under normal circumstances is 6.4 ounces daily, the amount needed doubles in warm weather. For example, if you have 10 hens, they will need 1/2 gallon of water in cool weather and 1 gallon of water in hot weather. Given this information and the hot climate in Oklahoma, the conservative average estimate of 0.075 gallons was used in the budget. (Clauer, 2009)
- 3 Amount of bedding was calculated allowing for 1.5 square feet per bird and a shavings depth of 2 inches. The assumption also was made that removing wet shavings would result in a complete change over every two months. Shavings needs were estimated using: pineproductsinc.com/measuring-tips-calculator.html
- 4 It is assumed it would take approximately 15 minutes to care for the laying hens per day and 10 minutes to care for the chicks.
- 5 It is assumed chicks would consume 0.1 pound of feed per day
- 6 The amount of water chicks will drink per day is found by multiplying the age of the bird in days by 0.2 ounces. <https://www.thepoultrysite.com/articles/water-intake-a-good-measure-of-broiler-performance>
- 7 Amount of brooder space needed by chicks is approximately 6 square inches per bird 0 weeks to 4 weeks of age, and 12 square inches per bird 4 weeks to 8 weeks of age. extension2.missouri.edu/g8351#:~:text=Chicks%20need%20enough%20space%20under,square%20inches%20of%20brooder%20space
- 8 It is assumed you could feed 15 hens per 7-pound feeder, 10 hens per gallon waterer and 12 chicks per 20-inch feeder and 5-quart waterer.
- 9 It is assumed that, on average, a chicken would lay an egg every other day and that eggs would be sold by the dozen.

Enterprise Budget on a Per-coop Basis

Variable costs

Variable Costs Associated with Hens

Number of Hens=H; D= number of days evaluated, set to 1095 (3 years)

	Cost per unit		Total number of units needed	Total cost
Layer Feed	_____ (\$/lbs)	_____	(lbs/D/coop)	_____
Water	_____ (\$/lbs)	_____	(gallons/D/coop)	_____
Bedding	_____ (\$/Cu.Ft.)	_____	(cubic feet/D/coop)	_____
Labor	_____ (\$/hour)	_____	(Labor/D/coop)	_____
Miscellaneous	_____ (\$)	_____		_____

Variable Costs Associated with Chicks

C=Number of Chicks; P= number of days you have chicks in seclusion

Chicks	_____ (\$/chick)	_____	(number of chicks)	_____
Chick feed	_____ (\$/lbs)	_____	(gallons/P/coop)	_____
Water	_____ (\$/gallon)	_____	(gallons/P/coop)	_____
Bedding	_____ (\$/Cu. Ft.)	_____	(Cubic Feet/coop)	_____
Labor	_____ (\$/hour)	_____	(Labor/P/coop)	_____
Miscellaneous	_____ (\$)	_____		_____

Fixed costs

Fixed Costs Associated with Hens

Coop	_____ (\$/unit)	_____	(coop materials needed)	_____
Feeder	_____ (\$/7 lb feeder)	_____	(feeders/coop)	_____
Drinker	_____ (\$/Gal. waterer)	_____	(drinker/coop)	_____

Fixed costs associated with chicks

Chick housing	_____ (\$/unit)	_____	(number of units needed)	_____
Feeder	_____ (\$/20-in feeder)	_____	(feeders/coop)	_____
Drinker	_____ (\$/5-qt. drinker)	_____	(drinker/coop)	_____
Heat lamp	_____ (\$/unit)	_____	(number needed to maintain heat)	_____
Thermometer	_____ (\$/unit)	_____	(number needed to measure temp)	_____

Total costs (TC)=E+H+K+N+O+R+U+W+Y+AB+AC+AF+AI+AL+AO+AR+AU+AX+BA

Revenue

	Revenue per unit		Total numbers of units	Total Revenue
Eggs	_____ (\$/12)	_____	number of eggs sold	_____
Meat (salvage)	_____ (\$/bird)	_____	number of birds sold	_____

Total Revenue (TR)=BD+BG

Profit=TR-TC

Break even price for eggs=TC/BC

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