

Pedigree Turkey Breeding Costs

pedigree breeding enterprises studied to evaluate the efficiency and potential gains of pedigree selection program

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Long-run progress in the turkey industry is bound up with the work of the pedigree breeder.

Strains developed by successful pedigree breeding demonstrate their value in superior marketability or in the reduction in meat bird production costs associated with faster growth rates. Savings in initial cost of poults following improved laying capacity and higher fertility in the parents should be achieved.

The purpose of this study is to examine the costs of pedigree breeding enterprises and the prices payable for their eggs if the industry is to maintain access to the potential gains associated with pedigree selection.

Commercial breeders mate a flock of hens and hatch their eggs without regard for parental identity. On a part of the pedigree flock, the output of each bird is recorded, its eggs identified and likewise its progeny. The pedigreed replacement flock is selected carefully from each generation for the characteristics of weight at maturity, rate of growth, conformation, egg production, fertility, and hatchability.

The table in this column summarizes the net costs per egg incurred by two California turkey breeders who follow approved pedigree practices. Maintenance of the base flock and the provision

of replacement stock have been included. Income from the sale of birds for meat was deducted proportionately from each gross cost item. These costs are based on the conditions obtaining during a specific year—1953—and may thus catch enterprises in various stages of development. However, both the breeders covered in this study had been in operation for five years or more and had established a fairly stable pattern of procedure. Apart from certain minor adjustments for consistency, the cost data are those furnished by the operator from his own accounts.

Factors contributing to the marked difference in feed costs between breeders *A* and *B* include *A*'s practice of growing part of the feed requirement on the farm, variations in the type of ration purchased and in the proportion of birds raised to market age to birds kept for breeding. Provision of fresh green feed absorbed part of a relatively inflexible labor supply which might not otherwise have found profitable employment on farm *A*. The labor costs are notably higher than those of *B*. Repair and supply costs may have included variable proportions of what amounted to permanent improvements.

On farm *A*, the owner-operator allowed himself the hourly wage of a skilled worker and—making no additional charge for management—depended for incentive remuneration on whatever profit resulted from the year's operation.

Farm *B* had a working manager and other hired help in addition to the owner. Personnel charges in excess of the going wage rate were classed as costs of management.

Expenditures incurred in marketing the product of the enterprise are classed as selling costs. They include travel, advertisement, and the maintenance of business and professional contacts as well as packaging. They vary according to the effort expended in developing appropriate market outlets. Farm *B* incurred heavy selling charges as a means of intensifying public demand for its product and expanding its market at favorable prices. An outlet for *A*'s eggs was provided through contractual arrangements or by personal recommendation and local knowledge.

The various factors which would contribute directly toward raising the costs of the pedigree breeder above those of the commercial multiplier were analyzed. Investment in incubators, hatchery buildings and a brooder house is necessary, whereas the multiplier may avoid this capital outlay by obtaining poults from a custom hatchery. Trap nests, with additional housing and fencing, are also obligatory. Overhead costs—interest, depreciation, property taxes, insurance and repairs—on this equipment are extra charges incurred by the pedigree enterprise. No measure of the additional feed, medication, and utility expenditure on the pedigree flock was available.

The major labor tasks were estimated on a man-hour-wage cost basis and appear in the table below. Additional labor inputs involving special care connected with hatching, inspection, and selection could not be estimated with any precision. Selling expenses were attributed to the pedigree enterprise. The additional pedigree costs distinguished amounted to 20% of total costs on farm *A* and at least 36% on farm *B*.

The degree of divergence in the costs reported by these two enterprises with respect to record keeping, trap-nesting, purchase of bands, saddles, and so forth,

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Net Operating Costs: Sample Pedigree Turkey Breeders, California, 1953

	Cost per egg		Proportion of total costs	
	A	B	A	B
Fixed Costs				
Rent		0.72		1.47
Interest ^a	0.87	0.85	2.17	1.73
Depreciation	0.95	1.55	2.37	3.16
Taxes	0.51	0.51	1.27	1.04
Insurance	0.21	0.39	0.52	0.80
Total	2.54	4.02	6.33	8.20
Variable Costs				
Feed	21.11	27.51	52.63	56.15
Medication		0.47		0.96
Utilities	1.01	0.63	2.52	1.29
Repairs	0.86	2.71	2.14	5.51
Supplies	0.14	0.73	0.35	1.49
Labor	8.92	6.93	22.24	14.16
Management		1.91		3.89
Selling Expenses	5.53	4.09	13.79	8.35
Total	37.57	44.98	93.67	91.80
Total fixed and variable costs	40.11	49.00	100.00	100.00

^a Computed at 3.0% on all the fixed investment (equivalent to 5-6% on the undepreciated balance), thus compensating for the absence of a rent charge where the farm is owner operated.

Cost Items Attributed Directly to Pedigree Turkey Breeding Practices^a

	Cost per egg	
	A	B
Fixed Costs		
Interest	0.19	0.58
Depreciation	0.38	0.47
Taxes	0.13	0.52
Insurance	0.04	0.39
Total	0.74	1.96
Variable costs		
Repairs	0.18	2.79
Labor:		
Checking and moving birds into pens	0.20	0.26
Trap-nesting	0.45	2.31
Sorting and candling eggs	0.11	0.19
Sending poults	0.14	0.14
Maintaining records	0.20	1.74
Other special tasks	0.42	n.a. ^b
Bands, saddles, etc.	0.18	1.05
Selling expenses	5.66	8.09
Total	7.54	16.57^c
Total fixed and variable costs	8.28	18.53

^a No allowance for income from sales of birds for meat.

^b Not available.

^c Not including 3.79% per egg management cost.

TURKEY

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and expenditure on sales efforts limit the validity of any average or generalized estimates based on these data alone. The operators are pursuing different goals, the one seeking a wide market for direct sales, the other furnishing supplies through intermediary channels. This phase of the study indicates the character and range of the special pedigree expenses.

Similarly no attempt was made to evaluate the efficiency of these particular enterprises and thus to consider whether services of equal quality may be obtained at lower cost.

This exploratory study points the way toward the development of systems by which the cost of various alternative genetic programs might be estimated in advance. The effect of variations in the proportion of birds of different ages maintained, in the duration of the testing periods, and in the price of labor and feed could be analyzed. Geneticists are able to forecast provisionally the degree of gain which may be expected from the maintenance of standard selection programs for a given number of generations. Economic values may also be attached to these expected gains. The synthesis of these two approaches would permit both individual breeders and industry groups to balance the cost of a proposed breeding program against the probable gain.

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MARGINS

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lower purchase prices put the large stores in a position to quote lower retail prices and have lower absolute margins but still have relative spreads averaging not less than some other stores. In terms of returns in relation to investment in fresh citrus, the large stores are in a favorable position, particularly in view of their volume handled and rate of inventory turnover.

Lower wholesale price is not a consistent advantage held by large stores at all times. When the detailed daily and weekly record is studied, it is found that only periodically, with an irregular timing, do their wholesale prices go sharply and markedly below the wholesale prices paid by other stores. The same applies to the absolute spreads in the large stores. At other times, and not for brief periods, the wholesale prices paid by the

large stores hover close to or not much under the wholesale prices paid by medium-sized or small stores. The lower average retail and wholesale prices, and also absolute margins, in the large stores are due in the main to the occasional intervals when the large stores enjoy marked differentials in their wholesale prices and at the same time operate with reduced absolute margins.

The small stores maintain their competitive position with the medium-sized stores by accepting smaller margins, absolute and relative, than do the medium-sized stores. The latter, however, succeed in maintaining their absolute and relative spreads above those of the small stores as well as the large ones.

Wholesale Prices

Citrus margins, in cents per pound, do not remain fixed; they change in response to changes in the wholesale prices. As the wholesale price increases, the cents-per-pound margin also increases, but the relative or percentage margin decreases. The changes in the margins, as the wholesale price changes, are summarized for oranges as follows:

Store group	Change in absolute margin (cents per pound)	Change in relative margin (per cent retail price)
Small stores	+0.32	-0.55
Medium stores	+0.41	-0.37
Large stores	+0.34	-0.09
Weighted average for all stores	+0.37	-0.36

The above figures show that in response to changes in the wholesale price, the effect on the absolute margin is about the same in the small and large stores; but there is a greater effect on the absolute margin in the medium stores. In terms of the relative margin, however, changes in the wholesale price result in substantially greater effects on the relative margin in small stores than in large stores; the effect for the medium stores being about halfway between.

It is clear that changes in the wholesale price cause different effects on the margins of various sized stores. As the wholesale price varies from day to day or week to week, instabilities result in margins and also in retail prices.

Sales Volume

In addition to wholesale price changes, retail margins are affected by the volume of citrus sales in the stores. As the sales volume increases, the margin tends to decrease; with decreased volume, the margin tends to increase. Such average effects of volume on margins, in each of

the three sizes of stores, are shown for oranges in the table below:

Store group	Change in absolute margin (cents per pound)
Small stores	-1.08
Medium stores	-0.32
Large stores	-0.10
Weighted average for all stores	-0.33

These results not only show how much the margin is affected with changes in retail sales volume in each of the three store groups but the effects differ in each of the groups. Thus, as business volume fluctuates from week to week and shifts from store to store, it carries along with it fluctuations in the store margins.

Margins, and their changes over time, do not occur by chance or haphazardly. Changes in retail margins are intertwined with changes in many business factors, particularly, changes in wholesale prices and changes in retail sales volume.

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HONEYBEES

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TEPP, Compound A-42, Compound 340, endrin, and chlordane.

Moderately toxic materials were: potasan, Compound 21/116, Compound Q-137, DDT, calcium arsenate, isodrin, Compound 1189, tartar emetic, Chlorobenzilate, Compound 21/199, cryolite, Compound 876, *ryania*, NPD, TDE, R-242, OMPA, methoxychlor, Compound 2066, DNOCHP, Aramite, and toxaphene.

Relatively safe materials were: sulfur, Compound 2131, rotenone, Ovotran, chlorinated terpine, Compound Q-128, pyrethrins, Compound 923, Neotran, CMU, demeton, allethrin, DMC, cunilate, dilan, and nicotine.

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