OPTIMUM WEIGHT TO WHICH PIGS SHOULD BE CARRIED FOR MAXIMUM PROFIT[1]

The swine industry in Puerto Rico to be profitable must be efficiently conducted. To that end, good stocks that convert feed efficiently are of economical importance. As swine make inefficient use of forage crops, high-priced concentrates have to be fed.

For that reason, and because the Agricultural Experiment Station has developed and made available a line of swine that is an efficient converter of concentrate feeds into pork,[2] a table (table 1) has been devised to help determine the optimum weights to which such pigs should be carried for maximum profit under our conditions. This table will enable swine producers to estimate net profits from the enterprise before venturing into it. The table is a revision of previous ones.[3]

The data in the table covers feeding trials held from 1967 to 1969, which included 100 pigs of the ¾ Duroc X ¼ English Large Black Landrace line of pigs developed at this Station.[4] The trials extended from weaning time on the 56th day to the 154th day of age of the animals. The pigs were weighed at weaning, at 70 days of age, and thereafter every 28 days until reaching 154 days of age. The average weaning weight was 30.18 pounds. The animals were fed *ad libitum* and the feed consumption recorded. Each group consisted of two females and two barrows. The groups were housed in 8 X 10 foot pens provided with automatic feeders and waterers.

The concentrate ration fed in all trials was mixed at the Lajas Substation's mixing unit. It contained approximately 15-percent crude protein, 3-percent crude fat, and 6.5-percent crude fiber.

The data collected was analyzed by using Mitscherlich's law of diminishing return as the relation between feed consumed and weight of the animals. The corresponding profit calculations were based on feed prices varying from $3.00 to $5.50 per hundredweight and a sale price for pigs of 15 to 31 cents per liveweight pound.

The overhead costs were disregarded in the calculations, although they are assumed to be approximately 20 percent of the total cost in swine production.

The average feed conversion of these pigs was 3.67 pounds of feed per pound of gain with an average daily weight gain of 1.73 pounds.

[1] The authors thank Dr. Bernardo G. Capó for his assistance in the analysis of the data.

[2] Carlo, I. and Arcelay, C. L., The development of a swine line for Puerto Rico, Agr. Exp. Sta. Mayagüez Campus, University of Puerto Rico, Bull. 193, May, 1965.

[3] Carlo, I., Optimum weights to which pigs should be carried in Puerto Rico for maximum profits, *J. Agr., Univ. P.R. 42* (1): 35–7, 1958.

[4] Carlo, I., and Arcelay, C. L., *op. cit.*

TABLE 1.—*Optimum weights for maximum profits in ¾ Duroc × ¼ English Large Black Landrace pigs at the per pound selling price (liveweight) indicated*

Feed cost per 100 pounds	Selling price of liveweight pound of swine at—																	
	$0.15		$0.17		$0.19		$0.21		$0.23		$0.25		$0.27		$0.29		$0.31	
Dollars	*F*[1]	*W*[2]	*F*	*W*	*F*	*W*	*F*	*W*	*F*	*W*	*F*	*W*	*F*	*W*	*F*	*W*	*F*	*W*
3.00	470	167	555	183	631	196	699	206	760	215	817	222	869	228	917	233	963	237
3.25	416	156	501	173	576	187	644	198	706	203	763	215	815	221	863	227	908	232
3.50	366	145	451	163	526	178	594	190	656	200	712	208	764	215	813	221	858	226
3.75	319	134	404	153	479	169	547	182	609	193	665	201	718	209	766	215	811	221
4.00	275	122	360	144	436	160	504	174	565	185	622	195	674	203	722	210	768	216
4.25	234	111	319	134	395	151	462	166	524	178	581	188	633	191	681	204	726	210
4.50	196	100	280	124	356	142	424	158	485	170	542	181	594	190	643	198	688	205
4.75	159	88	244	114	319	134	387	150	449	163	505	174	557	184	606	192	651	199
5.00	124	77	209	104	284	125	352	142	414	156	470	167	523	177	571	186	616	194
5.25	91	66	176	94	251	116	319	134	381	148	437	161	490	171	538	180	583	188
5.50	60	54	144	84	220	107	288	125	349	141	406	154	458	165	506	174	552	183

[1] F = Feed consumed to reach maximum weight.

[2] W = Liveweight of the animal for maximum profits.

The use of the table can be demonstrated for a hypothetical case in which feed will cost $3.50 per 100 pounds and the pigs will sell for $0.21 per pound of liveweight. A pig with a liveweight of 190 pounds that has consumed 594 pounds of feed from weaning to market time at a cost of $20.79 will sell for $39.90. If feed is estimated at 80 percent of the total cost of production, this cost can be calculated to be around $25.98, which leaves a net profit of $13.92 to the producer for this particular pig.

It must be stressed that the table is based on data obtained with animals of good heritage, consuming good quality feeds, and raised under efficient management. Under such conditions, feed costs may be lowered and net profits increased to overcome other expenses such as the value of the pigs as feeders or at weaning time. These factors are not included in these calculations. However, feeder pigs attain a market weight in about 3 months after weaning and this presents the possibility of marketing about four crops of pigs a year.

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