ECONOMICS OF BUFFALO PRODUCTION IN PRIVATE VS STATE FARMS

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INTRODUCTION

Many of the third world countries suffer from a deficit between food consumption and production. They also suffer from the lack of available funds to finance the required investment for production development (south worth, 1967).

Besides, their agricultural institutional frame composes of the typical conventional small size farms of the mixed farming pattern where they apply a poor technology (Schultz, 1968). At macro level, most of these countries have some inherited economic obstacles, such as poor infrastructure, undeveloped marketing systems and instability of the economic policies (Todaro, 1977). All these economic characteristics resulted in a type of a conservative decision making of the private enterprisers towards investments in agricultural projects. They prefer trading, imports activities or construction contracting. Such business activities enjoy low capital output ratio (between 0.5 to 1.0), i.e. of a short capital turnover, while the agricultural investments in these counties are of a high capital-output ratio, i.e. between 4 to 10 (tinbergen, 1967). In addition to that most of the third world countries control the prices , as well as, the distribution mechanisms of the food product market under the umbrella of the food security. According, the private enterprises do not find sufficient market incentives for such outputs. Many agricultural inputs, including feed, veterinary medicines and equipments are imported. The followed monetary policies make the shadow exchange rate of the foreign currencies much higher than the official one . By expansion in demand the government can not afford the heavy burden of subsidizing the imported inputs by the private sector.

From all above, the governments of many third world countries prefer to intervene directly in the production. They establish state farms. However, the question is still valid, which is more feasible? the state enterprising or the private enterprising.

The macro economic issues or the ideological aspects of this subject are beyond the scope of this paper. However, the micro economic aspects and the farm management performance concerning the buffalo's enterprising are the objectives of this article. The concerned issues are: (1) human element and farm management, (2) productivity of dairy buffalo farms, (3) costs of production of buffalo-milk and (4) poor milk marketing incentives.

It should be mentioned that the considered private farm in this analysis is the commercial specialized dairy buffalo farm. Previous works have dealt with the buffalo production economic under the small scale conventional mixed-farming system (Soliman, Ibrahim and Fitch, 1985) and Soliman, Ibrahim 1985 .

Human element and farm management under the state enterprising system(the farm operator as well as the farm labor) is employed through the routine employment programs . Accordingly, there is a big doughty about the required behavioral qualification of the man-animal relationship and also they do not have the individual incentives. Sambraus, unshelm (1984) provided evidences that a relaxed man-animal relationship does not only influence the behavior of the animal but also its production. so it can compensate disadvantages from an unfavorable management system . they also influence of the human element can change the characteristics of production like feed conversion physical growth and fertility as well as the development of antibodies and the susceptibility to illness

there is a common attitude among the state employees . it is a tendency towards maximizing the frequency of the days-off. Czocs et al.,(1984) showed the effects of zero feeding of animals on Sundays. Findings reveal that, independent of the composition of diets, decreased performance of zero fed bulls on Sundays may be due to systemic effects which have to be taken into consideration when constructing management systems. Also, Sambraus and Unsheld (1984) showed that the behavior of animals which have adapted to a given man can be different depending on whether this man is present or absent. They added that, this fact should be taken into consideration when aiming at efficient farm management. The less production of animals due to the human element influence on animal productivity and physiological performance should be imputed as an additional cost item in terms of income-foregone.

One of the most important elements in the management of dairy cattle production is how the herdsman can realize the plans for all actual function (herdsman-ship). In the state farms there is a little, if any, freedom left for the farm operator to express his individual distinguished efficiency or herdsman-ship . the study of Hindelde. (1984) defined the level of herdsman-ship as the realization of the plans for optimal utilization of the available production system. They evaluated the level for four main components of herdsman-ship in milk production. These are: feeding practice, milking routine, general health and decision making. They founded that as a result of different level in hardship there was a remarkable increase in the milk production (14% from low to high level of herdsman-ship). They also noticed that between the lowest and the highest scores of herdmanships the smallest difference was in feeding practice and the highest difference was in decision component of herdmanship. as a conclusion, the ability to take a proper decision is most , critical factor for utilization of the livestock farm . This factor is an interaction of the operatateor character and theavalaible social and economic incentives, which, because of the characteristics of the state farms, do not, oftenly, exist.

PRODUCTIVITY OF DAIRY BUFFALO-FARM

From a sample survey of dairy buffalo farms under both state and private enterprising in Egypt, some major workable productivity measures were calculated. Table (1) presents four of these measures. Some important implications can be abstracted from the results of table (1). First, the ratio off buffalo-cows to bulls in the state farm (13:1) is narrower than that ratio in the private farms (34:1). This performance may allow a higher probability of successful conception. Even though, percent of buffaloes in milk of the total production. Buffalo-cow in the state was 55.3%, i.e. less than the private farm (75%). This is probably an indicator of poor management in heat detection and longer service period, i.e. longer interval between twice successive carvings.

Table (1): productivity measures of buffalo farms
Under state and private management

Comparative item	**Total farm**	**Private farm**
1-%(Buffalo-cow in milk/ producible buffalo-cow)	**55.3**	**75.0**
2-Ratio of buffalo-cow to buffalo-bulls	**13.5**	**34.5**
3-Annual milk yield per buffalo-cow in milk(kg)	**1789**	**1570**
4-Average daily milk yield per buffalo-cow in milk(kg)*	**4.9**	**4.0**

Total milk yield per buffalo-cow in milk along a milk season* Calculated as :
Interval between two successive calving in day

In order to get a fair measure of the milk yield it was calculated on annual basis. The total milk yield per milk season was divided over the days of the interval between two successive calving. The result is a weighted average of the daily milk yield on annual base, which can be multiplied by 365days to get an average annual yield per buffalo-cow . From table 1, such annual yield in the state farm.

Was 14% higher than the private farm, although the interval between two successive calving in the state farm was 36% longer than the private farm? This implies that although , the selection policy followed at the headquarter office was successful in keeping the individuals of the highest milk yield per season , the unsatisfactory on-farm management violated such potentiality , by poor detection operations, which economically could be translated into additional income foregone (equations 1 and 2). Such income foregone was 382 per buffalo-cow per year.

$$y_i = y_o(\frac{R_P}{R_O})$$

$$v* = (Y_i - y_o) \times p_f$$

Where:

= Potential annual milk yield per buffalo-cow (kg). $_i$ y

Actual annual milk yield per buffalo-cow (kg). $=_o$ y

%(bu ffalo-cow in milk)/(total buffalo-cows) in private= $_i$ R

farm.

%(buffalo-cow in milk)/(total buffalo-cows) in state = $_o$ R
farm.

=farm-gate price per 1-kg of milk = L.E.0.60 in 1986/1987. $_f$ p

However, the state farms offer a national developmental role, through selling selected pregnant buffalo-heifers to the private enterprises. Those heifers have been purchased as weaned heifers from the farmers as aside activity of the national project for fattening the buffalo veal. This procedure, if expanded would save the current drainage of the buffalo genetic make-up by the common commercial dairy buffalo farms in the big cities belt (Soliman, Ibrahim and Fitch, 1985).

COSTS OF PRODUCTION OF BUFFALO MILK

A sample survey was conducted in Egypt in 1988 to cover the year 1986/1987. The sample covered the private as well as the state farms for dairy buffalo enterprising. Date of the costs schedule was summarized from the farms records. Some adjustments were required to get the net cost per 1-kg milk . first, the share of the followers (other than the producible buffalo-cows) In the overhead costs were

subtracted from the total costs . the period of staying on farm by each category of the herd was used as a weight to calculate such share. Secondly, the value of the products (other than milk production) was also deducted from the total costs. These by-products are the calf-crop and the organic fertilizers. the net inventory change was zero, because the farms were in the equilibrium steady-state. All items were calculated per one buffalo-cow.

It should be mentioned that some cost items were omitted from the present analysis, such as depreciation of buildings, machineries and equipments plus the miscellaneous. They are omitted because their values are usually biased and base to some extent on subjective valuation, particularly in private enterprises. However, the sum of these items in private farm was around L.E. 58.9 per buffalo-cow per year and in state farm was around L.E. 12.1 per buffalo-cow per year.

Table 2 present the itemized costs per buffalo-cow and the net costs per buffalo-cow and the net costs per 1-kg of milk in both state and private farm. Some conclusion could be detected from such table.

The state farm uses more labor rate per buffalo-cow than the private farm. Therefore, the labor costs per buffalo-cow were 27% higher than the private farm. Also the labor element involved in the veterinary care on the state farm is much more than the private farm, also the waste in the medicines on the state farm is much higher than the private farm. Such factors were reflected in or higher costs of veterinary care on the state farm than the private farm by 44.5%.

With respect to feeding costs, whereas the state farm bared 61% higher costs of concentrate feed-mix than the private farm, the later expenses on fodders and rice straw are about 3 folds the expenditure

Table (2): costs per buffalo-cow per year and adjusted costs per 1-kg of milk

comparative item	state farm	private farm
costs per buffalo-cow per year (L.E)		
labor	106.1	83.5
concentrate feed-mix	47.0 78.2	296.2
fodders and rice straw	36.1	251.7
total cost item (١)		52.2

value of by-products/buffalo-cow/year	70.0 **7.5**	
calf-crop		110.3
	77.5	
organic fertilizer		**7.5**
	635	
(2) total value of by- products		**187.8**
(3) adjusted costs /buffalo-cow/year (1)-(2)=		**549.7**
	1789	
Milk output/buffalo-cow/ year(kg)		
	190	
Total milk yield		**1570**
	1559	
Milk quantity for rearing calves		**190**
	39.7	
(4) marketable milk yield		**1390**
(5) net/ costs/1-kg of milk(p.t) =(3)/(4)		39.5

L.E.= one egyption pound =100 (pt).

S=L.E. 1.90 in 1986/1987.

of the former on these items. The feeding pattern explains such difference in the costs. The state farm uses 77% of the starch equivalent form the concentrate feed-mix, while the private sector uses only 39% of the starch equivalent form such scour (table 3). It seems that the private farm attempts to avoid purchasing concentrate feed-mix form the black-market at a price two times the subsidized price. However, the quota provided by the government is not enough (around 90kg per buffalo-cow per mouth) . Therefrom, the private farm operator depends on fodders to reach the full requirements. However, higher concentrate feed-mix on the state farm leads to higher milk yield.

Table (3): average feeding rate per buffalo-cow per day in kg

Type of feed	natural farm		Starch equivelant	
	state	private	state	private
Concentrate feed-mix(1)	10	5.5	5.5	3.0
Green fodders(2)	14.5	50.0	1.2	4.0
Rice straw	2.0	3.0	0.46	0.69
			7.16	7.69

(1) A processed mix in cubes. It composes of cotton seed meal + imported yellow corn+ brans (wheat and rice)+ molasses +minerals.

(2) Egyptian berseem in winter + sorghum or elegant grass in summer.

The lower costs items on the private farm and the higher value of calf-crop compensated the less annual milk yield per buffalo-cow than the state farm resulting in almost similar net costs per 1-kg of milk. However, a considerable difference in costs of production will be observed if the costs of concentrate feed-mix is calculated at the shadow price (international price). The shadow price of the concentrate feed-mix is 2-3 folds the subsidized price and 1.15 of the black market price. In this case the costs of production per 1-kg of milk under private enterprising will be 53.7 pt., i.e. only 68.5% of the costs under the state farm enterprising (78.4pt) , table(4).

Table (4): Costs of production of 1-kg of milk at shadow price of concentrate feed-mix

Comparative item	State farm	Private farm

Net costs/buffalo-cow per year at current prices (L.E)	635	549.7
Adjustments for subsidy of concentrate feed-mix	618.8	197.1
Adjustment costs per buffalo-cow per year at shadow price of concentrate feed-mix		
Marketable milk yield/buffalo cow per year (kg)	1253.8	746.8
Costs/1kg of milk at shadow price of concentrate	1599	1390
Feed-mix	78.4	53.7

POOR MILK MARKETING INCENTIVES

The private enterprising in many of third world countries suffer form poor marketing incentives, in terms of unfair share in the consumer dollar. This is mainly because of the poor marketing intra-structure which enlarge the pressure of the pressure of the middle-man on the farm gate price, in order to enjoy a very high profit margin form the dollar paid by the consumer, although , they offer a poor type of marketing . the following schedule represents the price spread of the consumer dollar paid for 1-kg of milk (average of 1987) in Cairo market.

PRICE SPREAD OF BUFFALO-MILK

Market level	Price, value per 1kg Of milk (pt)	Price spread
Consumer price	120	100
Marketing costs	15	12.5
Middlemen profit	45	37.5
Farm-gate price	60	50.0
producer's margin	13	10.8
costs of production	47	39.2

This obstacle has negative impacts upon private enterprisers to invest in such activity.

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