

## Farm Budgeting to increase farm Profits

by

T. K. T. ACHARYA

**Introduction:** One of the more frequently made complaints by the farmers and farm leaders is about the cost-price squeeze for the primary products. More often, the allegation is that prices received for farm products are low, while costs of production on the farm are high. Though the average farmer gets very concerned when this subject is mentioned, in actual fact very few know what their real costs of production are.

For example, how many farmers know what the per hour running costs, repair bills and overheads are for the oil engine or tractor they use on the farm?. If a group of farmers or a co-operative society is thinking of buying a tractor, how many acres of land would need to be saved among the group before overheads and running costs compare favourably with contract ploughing?. Or how much per dairy cow should be spent for veterinary medicines and inoculations to ensure a healthy dairy herd?. There is an item in the balance sheet headed 'depreciation' which is allowed as a running expense for tax purposes. But very few farmers have a depreciation account, which means that no financial provision is made for plant and machinery replacements.

All this emphasises that a large number of farmers fail to recognize that the farm is a business and must be run as such if they want to maximise profits. The old idea was that farming was more a way of life and that it was quite as much as a farmer needed to know, if he knew how to plant his crops, tend them while they are growing and to harvest them.

But, nowadays, ideas are fortunately changing and this change is more in evidence since the end of World War II, by the growing need to increase agricultural production and the complexity of market conditions. Farming has indeed become a business as well as a way of life. It is only for a select few, these days, that farming is a way of life and no more the select few who run their farms as a hobby and do not depend on them for their livelihood. But the vast majority of farmers not only live on their farms, they also have to live on the success of their farming. They have to live on what they receive from selling what is produced by their own and nature's efforts. If they sell their produce on a bad market they lose income; they lose just as surely if they pay too much for their supplies, for labour employed or in land rent.

---

<sup>1</sup> Professor of Agronomy, College of Agriculture, Dapoli, Ratnagiri District.

Received on 18-3-1966.

The two problems that a farmer is concerned with as a businessman are:

(a) he wants to maximise profits, which are the difference between total returns and total costs, subject to the condition that this maximisation is not at the expense of depleting soil fertility or overworking by the owner or animal units. One can maximise net returns either by making gross returns as large as possible or by keeping costs as small as possible.

(b) he is interested in choosing the best possible way of spending his limited working capital. This means that he has necessarily to postpone some items of work on the farm for future years.

**Farm budget and long term development programme:** The most satisfactory method of solving these problems is through budgeting. The farm budget is a plan for the organisation and operation of a farm over a specified future period of time. The specific purpose of a budget is to indicate the possible returns from various alternative plans. Comparison of the various plans allows selection of the one which is most profitable.

More specifically the objectives of farm budgeting are :

(i) Budgeting helps in guiding individual farmers to improve their production programme and income, through a systematic application of improved modern techniques and scientific knowledge in agriculture to enable him to move from the existing to a higher level of production with the available resources. In other words, budgeting is an excellent method of learning the latest methods of scientific agricultural production for organising and reorganising farms.

(ii) A carefully prepared budget helps the farmer in borrowing money, because the budget not only reveals the money needs during the year but also provides a basis for laying down a repayment schedule.

(iii) Budgets help the farmers to think more accurately looking to the future and refine their decisions, enabling them to assess the optimum quantities of improved seeds, manures, insecticides and pesticides, improved agricultural implements *etc.* Such accurate calculations help the farmer in making planned purchases of the various items.

(iv) Budgeting helps the farmer to save money and resources, because whatever mistakes he commits they are only on paper than on the field.

(v) Budgeting provides an effective programme of land utilisation and conservation.

(vi) Budgeting provides an advance estimate of the costs of each method or enterprise or practice and compare the costs with the potential returns.

Budgeting has got to be combined with a long term development programme, because most farmers are capable of improvement in one way or the other. In order to obtain the greatest benefit from the limited capital available it is essential that a long term development programme is drawn up which includes, (a) new buildings, machinery and livestock, (b) fencing, water supply and drainage, (c) roading, (d) provision of fodder (grass) and (e) farm shelter.

The amount of money available for development work can be worked out from the annual budget of the farm. Great care must be bestowed in fixing priorities of development expenditure. There is no use buying a tractor without an adequate amount of land for cultivation. So also, if he is a dairy farmer, there is no use of putting a large area under a new grass or fodder, if there is not sufficient capital or credit available to buy extra animals, or fencing material. Similarly, it is useless in acquiring sufficient polythene water piping to reticulate the whole farm if there is not enough water supply during dry spells.

As regards farm budgets, their value depends on the accuracy of the data, and reliability of estimates, used in it. A budget is a plan mainly in terms of future output and price expectations<sup>2</sup>. Following are the various steps in the formulation of farm budgets.

*Step I:* The goals have to be identified and stated by the farmer. These reflect the farmer's ideas, as to whether he wants more income or whether he wants to pay for his property or whether his children are in need of education or whether he wants to train his son on the land, or whether he wants to make profit this year, next year or over the next five years *etc.*

*Step II:* This step involves evaluation of the potential of the property. Farm assets and their condition determines the physical or technical feasibility of a plan. The amount of land, its past history, fertility level and present use are to be established. The environment in terms of seasonal conditions and topography must be considered. The existing lands and their productivity, the condition of equipment and buildings must be estimated. The stock of knowledge and ability of the farm operator himself, has to be assessed.

*Step III:* The quantitative production plan of the farm for the period envisaged, is to be prepared. This involves a crop programme wherein estimates of the number of acres which are to be grown under

---

<sup>2</sup> For a discussion of price variations see "Farm Management Analysis" by Bradford A. L. and Johnson, G. L. Ch. 20, pages 315 to 329.

different crops, the amount of seeds and fertilisers, the number of cultivations necessary and the estimated yields per acre. The basic information to use in this process will come from the records of the property itself if such records are maintained. In the absence of such records information has to be obtained from neighbouring farms. Such information on yields becomes a benchmark for purposes of comparison. Estimates regarding yields must be conservative because of their uncertainty due to weather conditions and other factors beyond the control of the farmer. The plan must also take into consideration sound conservation and wise husbandry procedures, although the final criterion is its influence on net income.

*Step IV:* The budget which is so far in physical terms must be translated into financial terms by bringing in prices. Prices for farm requisites, *i. e.*, costs and prices for farm produce are to be considered. Ruling prices may not be quite adequate and an educated guess of future prices is to be made taking into consideration production trends and demand projections. To some extent the estimates used will depend upon the farmer's attitude to risk and uncertainty.

*Step V:* Since farming is not entirely a business concern, it is necessary to consider the preferences of the farmer. There may be many small things, like preference to a particular breed of birds for poultry or a particular breed of dairy cattle, and amount of risk and unwillingness to secure money on loan *etc.*

It is clear from the above that considerable importance attaches to the data and information that can be drawn upon. A good deal of data and information may be needed in regard to crops, particularly the cash expenses that would be incurred for the production of the crop. Physical information would include the operations required, the kind of machinery that will be used and the amount of labour necessary at various stages of production. A clear picture is required for the relationship between the various enterprises to indicate whether they are competitive, supplementary or complementary in regard to certain resources or enterprises.

On the farm expenditure side, it is useful to group the expenses under three headings, as follows :—

(A) RUNNING EXPENSES :

1. Wages and contract.
2. Manures and fertilisers.
3. Seeds.

4. Fuel and oils.
5. Repairs and maintenance.
6. Railage and cartage.
7. Truck, tractor and other expenses.
8. Veterinary medicines and stock foods.
9. Depreciation on plant and machinery.

(B) OVERHEADS :

10. Insurance and registration charges on vehicle
11. Rates and rent.
12. Interest on debt.
13. Taxes.

(C) DEVELOPMENTAL COSTS : (already mentioned above)

If a farmer is budgeting for the first time he should go about it as follows :

*Firstly*, the income should be estimated using conservative prices. This is the combined value of all the marketable produce, planned for production on the farm.

*Secondly*, the overhead charges will have to be ascertained. Generally fixed or overhead expenses on a farm are much the same irrespective of what production programme is followed. Then an allowance for depreciation is made which is paid into the depreciation account.

*Thirdly*, the running expenses are estimated. Items like fertilisers and seeds can be worked out easily as their prices are readily available. Similarly wages and contract expenses, like ploughing, harvesting *etc.*, are easy to work. Items like veterinary expenses, repairs and maintenance and railage and cartage are more difficult to work out. Here past costs might be of some guidance.

*Fourthly*, to the sum of the overheads and working expenses is added a reasonable amount for living expenses. Whatever is left over would be spent on improvement after careful considering the long range developmental programme.

*Finally*, as the plan is put in operation the farmer should ask himself whether, (i) the asset is maintained, (ii) production is being carried on at minimum costs. If the answer to these two questions is not in the

affirmative then there is no point in going further. Similarly while buying some plant and machinery the farmer should enquire himself whether the machine would, (a) do the job adequately, (b) do the job in comparable time, (c) the overheads are low and (d) the wear and tear a minimum.

The preparation of a farm budget does not directly protect the farmer against errors of judgement and consequent losses, but careful planning as revealed in a conservative budget is likely to minimise the errors of judgement and ensure better returns.

**Budgets and Increased Profits:** Although some farmers may be sceptical about this approach and think that the time spent and effort involved in preparing a budget is not worth the trouble, a properly drawn budget with the long term development plan, must increase the farm profits for the following reasons.

(a) Development work is carried out in a logical sequence, which means that full use is made immediately of improved facilities to increase production. Capital assets are not left partly idle while development expenditure in other avenues catches up.

(b) Having been committed to certain definite items of expenditure the farmer is less likely to spend his money on stray items thereby dissipating his capital.

(c) At the end of the year the budget is compared with the farmer's profit and loss account or with that of his neighbour. The budgets can be subjected for scrutiny by the Farm Management Expert of the Department of Agriculture, who will be able to advise whether the farmer is low or high on various items, and pin-point weaknesses in management.

(d) Partial or full budgeting can indicate the most profitable of a number of alternative production programmes. When faced with many alternatives, preparing a series of budgets showing the possible returns and costs involved in each of the systems will enable the farmer to be in a much better position to appreciate their relative merits. The most economic method for the particular farm under question, and capital limitations can be ascertained by working through partial budgets, which will indicate what the extra effort is worth in terms of increased profits.

**Limitations:** Budgeting is only as good as the information on which it is based. Main limitations of budgeting are:

(i) The basic information determines the reliability of the budget. If the input-output data is not accurate, then the budget is not accurate.

TABLE

*Farm Costs and Returns on irrigated Sugarcane*

I Farms	1	2	3	4	5	6	7	8
II Net assigned area (acres)	53	54	56	45	63	53	62	68
III Tons cane supplied	1,320	1,345	2,200	1,162	1,629	1,131	2,031	1,857
IV Total receipts £	6,103	6,295	8,968	5,900	8,556	5,601	1,990	3,508
V Fertilisers £	211	302	207	310	826	457	540	424
VI Wages £	1,109	1,020	2,483	1,296	1,835	1,676	3,447	1,362
VII Fuel and Oil £	337	357	454	344	668	352	718	526
VIII Levies £	128	123	232	115	164	113	211	197
IX General expenses £	697	277	133	293	301	602	176	908
X Repairs and Maintenance £	245	545	1,037	378	1,654	447	216	564
XI Rates and Rents £	87	152	242	13	170	115	176	54
XII Depreciation £	317	718	999	679	547	344	744	783
XIII Wages of management £	1,300	1,300	1,300	1,250	1,350	1,300	1,350	1,350
XIV Total expenses £	4,431	5,394	7,147	4,678	7,515	5,405	8,578	6,366
XV Net surplus £	1,672	901	1,821	1,222	1,041	196	1,412	3,142
XVI Total capital invested £	16,477	22,599	26,397	21,054	24,118	16,477	29,869	25,048
XVII Percentage return on capital	10.15	4.00	7.00	5.64	4.32	1.19	4.73	12.54

TABLE

*Farm Costs and Returns on Rainfed Sugarcane*

I Farm	1	2	3	4	5	6	7	8
II Net assigned area (acres)	48	50	56	50	60	60	60	60
III Tons cane supplied	1,159	856	820	1,025	1,005	642	900	1,000
IV Total receipts £	5,934	4,398	4,409	5,773	5,142	3,250	1,190	5,186
V Fertilizers £	494	382	395	392	393	345	850	355
VI Wages £	1,407	66	774	1,332	962	261	362	626
VII Fuel and Oil £	255	94	254	138	232	244	85	257
VIII Levies £	107	83	83	99	96	66	76	92
IX General expenses £	176	175	140	149	71	97	102	75
X Repairs and maintenance £	345	550	434	186	273	309	436	243
XI Rates and rent £	50	108	58	152	98	56	32	27
XII Depreciation £	419	251	495	641	804	413	454	812
XIII Wages and management £	1,250	1,250	1,300	1,250	1,300	1,300	1,300	1,300
XIV Total expenses £	5,503	2,959	3,933	4,339	4,229	3,091	3,697	3,787
XV Net surplus £	431	1,439	476	1,434	913	159	493	1,399
XVI Capital invested £	1,491	10,815	13,335	14,700	11,445	10,500	13,545	12,075
XVII Percentage return on capital	2.89	13.31	3.57	9.76	7.98	1.51	3.64	11.59

Note: One Australian £ = Approximately Rs. 10.50 before devaluation.

Item XIV = Item V to XIII added.

Item XV = Item IV minus XIV.

1.

*Farms - Agr. Dist. (Queensland) for 1960.*

9	10	11	12	13	14	15	16	17	18	19	20
64	72	75	71	77	75	75	70	87	125	125	125
1,800	2,096	2,350	2,000	1,933	1,956	1,920	2,359	1,787	3,476	4,396	2,872
7,953	10,112	10,281	9,607	9,822	10,530	9,515	11,524	9,508	15,939	21,587	14,390
465	201	337	331	530	637	337	771	524	630	702	1,080
1,522	1,901	2,432	1,925	2,009	3,019	2,821	2,701	1,653	4,468	5,537	4,893
559	577	479	400	551	608	417	529	816	934	1,323	1,190
171	213	238	201	202	185	189	249	175	356	451	291
445	770	419	896	530	216	105	577	283	986	386	806
896	406	757	672	502	301	328	635	440	1,635	561	1,499
134	189	208	206	194	295	140	163	186	360	354	506
1,011	730	819	664	651	1,076	764	785	1,089	1,007	1,153	1,121
1,350	1,400	1,400	1,400	1,400	1,400	1,400	1,350	1,500	1,500	1,500	1,500
6,553	6,437	7,089	6,695	6,569	8,737	6,501	7,760	6,667	11,866	11,967	12,890
1,400	3,675	3,192	2,912	3,253	1,793	3,014	3,764	2,941	4,073	9,620	1,500
24,428	2,8040	31,000	27,730	27,947	28,241	32,240	27,296	31,806	49,972	55,025	50,546
5.81	13.11	10.30	10.50	11.64	6.35	9.35	13.79	9.25	8.15	17.48	2.97

2.

*Farms - Mackay. Dist. (Queensland)*

9	10	11	12	13	14	15	16	17	18	19	20
55	60	60	75	63	68	60	76	60	50	60	70
936	912	1,146	950	700	1,465	1,290	911	1,018	934	800	1,105
5,047	4,854	5,873	5,038	3,784	6,941	5,788	4,806	5,340	4,732	4,640	6,990
412	392	800	601	343	179	389	613	592	458	268	988
762	863	655	840	574	1,880	870	820	1,520	397	691	1,733
227	229	320	290	287	172	470	253	435	75	263	363
92	91	134	91	89	139	122	87	104	98	84	133
13	128	249	164	230	901	223	166	137	143	193	208
276	94	641	350	732	128	460	636	639	325	248	672
40	76	127	98	114	198	81	75	72	53	44	82
688	875	890	990	467	1,193	560	513	422	679	527	1,143
1,300	1,300	750	1,400	750	1,350	750	1,400	1,300	1,250	1,300	1,350
3,800	4,048	4,566	4,824	3,586	6,140	3,925	4,563	5,221	3,478	3,618	6,672
1,247	806	1,307	214	198	801	1,863	243	119	1,254	1,022	318
14,070	11,025	12,075	15,120	11,130	19,740	13,335	14,280	14,910	11,130	11,445	14,805
8.86	7.31	10.82	1.42	1.78	4.06	13.97	1.70	0.80	11.27	8.93	2.15



(ii) Unforeseen price fluctuations and seasonal variations make accurate estimates difficult.

(iii) Lack of information on the effects and costs of new techniques makes effective budgeting difficult.

(iv) Each budget compares only one possible organisation, when theoretically there are hundreds of possible combinations which could be used. Even when a large number of budgets are prepared we are still considering only a few of the many possible solutions.

**Example:** The great weakness involved in the lack of appreciation of the budget approach to relate costs and returns to management practice is clearly brought out in the examples of sugarcane farms in Queensland (Australia). Tables 1 and 2 include data on costs and returns for the year 1960, of 20 farms from each of the two survey areas, namely, rainfed farms of Mackay District and irrigated farms of Ayr District in Queensland. If percentage return on capital is taken as a measure of efficiency, one finds that it ranges from as low as 1.19 to as high as 17.48 among the farms of Ayr sample, and 0.80 to 13.97 among farms of Mackay sample. Even among identical farms (identical with respect to net assigned area and tonnage supplied to mill) in both the samples, the range is considerably wide. For example, farms 1, 2 and 6; 13, 14 and 15; and 18, 19 and 20 of Table 1 (Ayr sample) have got similar net assigned areas but the percentage return on capital ranges between 1.19 and 10.15; 6.35 and 11.64; and 2.97 and 17.48 respectively. Similarly in the case of farms 5, 8 and 17 of Table 2 (Mackay sample) the figures are 7.98, 11.59 and 0.80. Looking at these Tables from another point of view it can be said that farms in both the samples giving roughly the same percentage return on capital have widely varying net assigned areas and tons of cane supplied to the mill. Farms 1, 11, 12, 13, 15 and 17 of Ayr sample, and 6, 12, 13, 16, and 17 of Mackay sample may be cited as cases in support of the point.

**Conclusion:** From the example of farms cited in the two Tables 1 and 2, it can be said that when the farmers do not budget then they have also no reason to complain about high costs of production, because they are not only unaware of what their costs actually are but are also unprepared to make an effort to reduce them.

---