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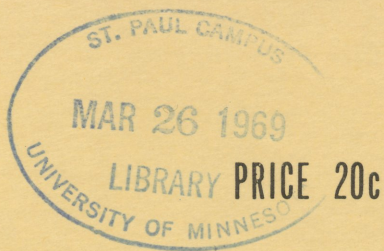
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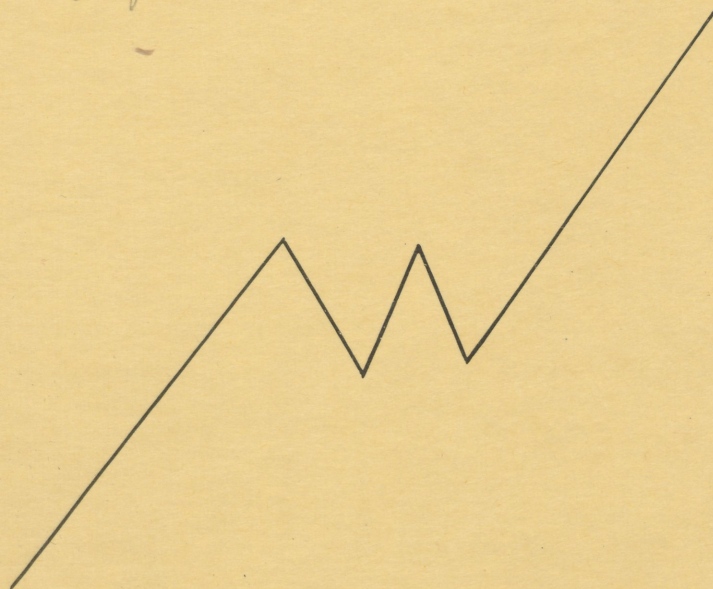
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Articles in the field of agricultural economics, suitable for publication in the journal, will be welcomed.

Articles should have a maximum length of 10 folio pages (including tables, graphs, etc.), typed in double spacing. Contributions, in the language preferred by the writer, should be submitted in triplicate to the Editor, c.o. Department of Agricultural Economics and Marketing, Pretoria, and should reach him at least one month prior to date of publication.

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# Some Thoughts on the Concepts of "Operator's Earnings" and "Gross Profit"

by

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In most of our farm management studies few or no attempts have been made to include management as a production factor and this important element is usually accepted as given. In this article an attempt will *inter alia* be made to settle this matter in a quantitative manner.

Largely historically, and to a lesser extent more recently, the operator's earnings (in terms of agricultural economics) are used as a financial criterion to compare farm enterprises in the same area as well as in different agricultural areas. On the other hand the concept of gross profit has only recently been accepted as a norm in economic planning of the farm.

Thus it is desirable to consider the two concepts in perspective and to test their use against certain fundamental principles.

Operator's earnings [in the sense of agricultural economics<sup>1)</sup>] constitute the remuneration which the entrepreneur (farmer) receives for his management and labour, after all expenses have been covered and provision made for a reasonable return on the capital invested in the enterprise.

Gross profit is the balance remaining after deducting from the income the costs

which can be directly allocated [not fixed costs<sup>1)</sup>].

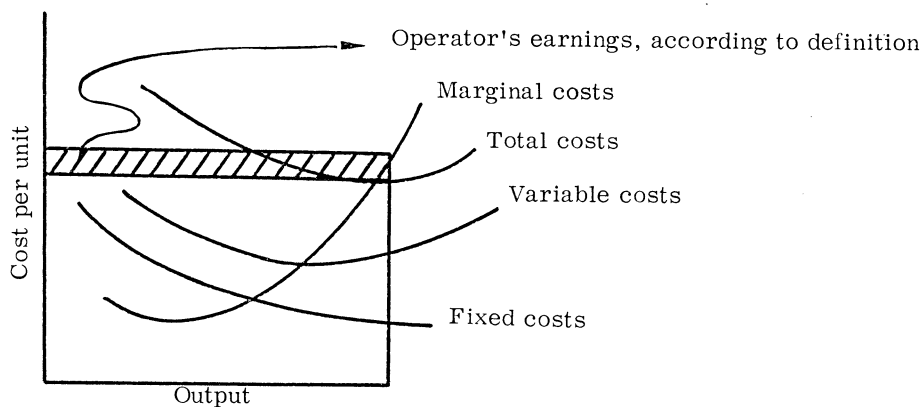
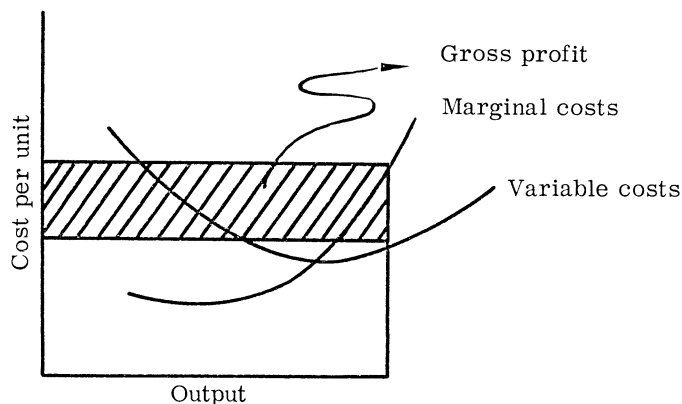
We are thus concerned with two concepts - one long term and the other short term - although both may, in terms of farm-enterprise planning, be reconciled with each other or separated, or both, as will soon be apparent. The two concepts are illustrated in the graph.

Although the operator's earnings as such do not represent an amount in cash, they may be considered the best criterion for comparing farming enterprises in respect of qualitative characteristics of both management and operator. It must be emphasised that the comparison can only be made within a homogeneous area. Compare for example an intensive region with a favourable economic location and an extensive region away from the market. It is commonplace that the farmer in the former region will have greater opportunity to give expression to his management ability than one in the latter region. The fact that in agriculture there is a relatively low degree of entrepreneurial mobility<sup>2)</sup>, thus largely does away with the argument of free choice of locality for demonstrating entrepreneurial talents, and here we will refer more directly to the function of management. Because of the

1) Since it is very difficult to allot any reliable wage to management (in this case the farmer), management and labour are included in the amount represented by operator's earnings.

1) Costs allocated directly are understood to be all costs which can be directly assigned to specific branches of the enterprise.

2) There are various reasons for regional attachment in agriculture, for example historical tradition, legacies, capital needs and so on.



differences in opportunities to demonstrate management in different areas the operator's earnings are not fair norms of comparison between regions.

After this explanation of comparisons between regions we may now proceed with comparisons within a homogeneous area. As has been demonstrated in many studies, there is a close relationship between the scale of enterprises and operator's earnings within the same area. Where we are here concerned with the qualitative measurement of management and entrepreneurs' talents, it is clear, for obvious reasons, that the financial standard under dis-

cussion would not provide the correct answer when applied on a farming enterprise basis. The nearest approach to a satisfactory answer would thus be to express the operator's earnings in terms of some unit such as area under cultivation in an intensive crop area, area under irrigation in an irrigation area, large-stock units for livestock farming, etc. It must be stressed that only established farmers in a specific area are being considered.

To illustrate this statement the reader is referred to Table 1. It should be mentioned that the economic data and the in-

formation on the decision making process, were obtained from two separate and independent surveys from the same farmers<sup>1)</sup>. The information in this table shows that the operator's earnings per morgen of table grapes clearly indicate the qualitative differences between the entrepreneurs.

From Table 1 it appears that there is no definite relationship between operator's earnings per morgen and capital investment per morgen.

With all analyses of this nature one has to be careful with interpretations. The middle group of farmers usually consists of those who could either move into the higher or lower groups. Nevertheless it should be accepted that the operator's earnings per morgen are a good indication of management ability.

- 1) De Swardt, J.B., D.Sc.Agric. Thesis: The decision making process of table grape producers in the Hex River Valley, University of Pretoria, 1965. In this thesis management was analysed in terms of the functions which the manager undertakes. Before a decision is taken by a farmer certain observations must be made, then certain analyses will be made and after that problems can be identified, while the soundness of the decisions will be reflected in the farming practices. Accordingly the sources of information utilised by farmers were analysed; the knowledge of farmers regarding quantitative information on their farms was determined and, to analyse the orientation function, it was established to what extent farmers plan over short and long terms, how the organisation of their farms was promoted, their acquaintance with the short-comings of their own enterprises and the steps taken to overcome these. The three management functions (observation, analysis and orientation) were combined into an index and, taken together with the farming practices index, a decision making index was obtained which served as a standard of ability in management as employed in this article.

TABLE 1 - Relationship between operator's earnings and management ability, per morgen of table grapes, Hex River Valley, 1963/64

Frequency groups, operator's earnings	Management ability	Capital investment per morgen
R per morgen	Index	R
To R700	53	6,415
R700-R1,400	67	5,699
Over R1,400	93	5,826

The correct method of sorting is of course to test the hypothesis, that the able farmer will secure a better financial result, in which case the index of management would serve as the causal factor. This is done in Table 2, where it appears that this tendency is very prominent. Here again there is no specific tendency in capital investment per morgen.

TABLE 2 - Relationship between management ability and operator's earnings per morgen, Hex River Valley, 1963/64

Management ability	Operator's earnings per morgen	Capital investment per morgen
	R	R
High	2,001	5,881
Above average	1,054	5,642
Average	773	6,919
Low	473	5,620

One could enquire now, why net farm income or even gross profit per morgen could not be used equally well in the table and for the same purpose. It is logical to accept that most financial standards used in agriculture, whether negative or positive, will tend in the same direction. Here we are concerned, however, in measuring



(even though only approximately) a specific production factor and in the absence of psychological norms, which is not at the disposal of the agricultural economist in South Africa, the operator's earnings per morgen remain the best quantitative norm to determine the relative position of the management factor. Table 3 illustrates this clearly.

The information in Table 3 is even more significant when one takes into account that in this region farming is highly specialised and that the allocation of costs is straightforward. It can also be expected that where fixed costs, even over the short term, play a very important part in determining profits (tobacco and fresh milk production are examples) these tendencies will be even more apparent.

The financial standard, gross profit, is used as an aid in farm enterprise planning. The usefulness of this norm can be two-fold:

1. The gross profit of a farming enterprise can be determined.
2. The gross profit from separate sections can be compared as well as given management practices and farming techniques. As with other financial norms the limitations of gross profit must be taken into account in planning for the following reasons:

a) Firstly, fixed costs are excluded from the determination and in specific instances these can be of primary importance when planning. With tobacco production, for example, the provision of sufficient flue-barns can be of cardinal importance in determining quality and even loss of leaf. If account is not taken of this, it could easily result in faulty planning and recommendations. The same applies to fresh milk production where the layout of milking sheds plays an important part in determining financial success. It is therefore contended that the usefulness of gross profit by itself in enterprise planning loses significance as the integration between fixed and variable costs increases.

b) In South African agriculture labour costs are one of the most important items, and proper planning of labour on the farm is therefore essential. Since regular labour is not taken into account in the norm under consideration, this implies that one of the most important production factors is ignored. This factor is of even greater importance when account is taken of the integrated part which labour plays in a combination of several branches of farming.

c) In determining profitability between different branches of farming the phy-

TABLE 3 - Relationship between management ability and operator's earnings per morgen, net farm income per morgen and gross profit per morgen, Hex River Valley, 1963/64

Management ability	Operator's earnings per morgen		Net farm income per morgen		Gross profit per morgen	
	R	Index	R	Index	R	Index
Low	472	100	707	100	1,223	100
Average	773	164	1,134	160	1,604	131
Above average	1,054	224	1,432	203	1,969	161
Good	2,001	425	2,626	373	2,801	229

sical functional relationships are not taken into account. In a rotation cropping system where there might be complementation, it could happen that one branch will be over and another underloaded. With supplementary relationships on the other hand, this technique functions very well since only the variable factors are taken into account, as with wheat on many irrigation projects where tobacco is the main crop.

These limitations do not imply that gross profit is useless in planning, but recognition of the short-comings will enhance the usefulness of the norm.

## SUMMARY

The usefulness of operator's earnings per technical unit and gross profit per farm or branches of farming may be summarised as follows:

- (1) The first approaches the human factor and can be used as an indication of the relative differences in management ability;
- (2) gross profit, on the other hand, relates to the relative profitability between different products, while management ability and farming techniques are accepted as given.

Where the production factor management cannot always be evaluated in terms of usual psychological norms, it is therefore possible and desirable to use both norms (taking into account their short-comings) when enterprises are planned. Thereby the whole constellation of production factors and not only some are taken into account.