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The Human Factor in Agricultural Management

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Norwegian Experience from Extension Work in Farm Management

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Recently a report was published in Norway concerning the factors influencing the economic growth of the country during the last 100 years [1]. One of the findings was that the growth in capital assets per head had been less than the growth in total production per head. If we assume two factors of production, capital and labour, and assume a reasonable functional relationship between input and output, we should have expected a more rapid increase in capital per head than in total production per head. The conclusion the author drew from this was that the growth in capital and employment is not sufficient to explain the growth in total production. He found that less than half of the increase in total production had been due to the increased input of labour and capital. The rest of the growth must be explained by some indefinite and unmeasurable factors. Another interesting finding was that the influence of the undefined factors is increasing, i.e. they are more dominant today than they were a hundred years ago.

These results are not confined to Norway. Similar phenomena have been observed in several countries. Various attempts have been made to explain what these other factors are. One explanation is that the growth is due to production on a larger scale, to specialization of production, to better organization etc. Another is that education and research are the most influential factors. It is this last hypothesis that the author believes in though he emphasizes that it has not been proved statistically.

The investigation I have referred to was made on a macro level, but one may assume that the same result would hold on a micro level. In this connexion I may mention a Norwegian investigation which was made among farmers who had been through agricultural schools and others who had not (see Table 1).

According to the table education seems to be more important on larger than on smaller farms. Other observations show that the educated farmers have both larger incomes and costs. The value of their assets is higher

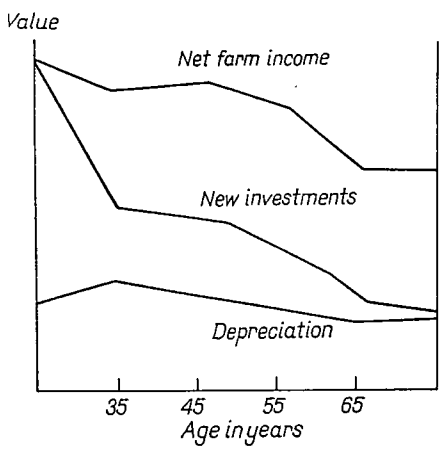
and they have more debt. Further, the productivity is higher among educated farmers, i.e. they have higher yields per ha, and higher milk yields per cow. The educated farmers are ordinarily younger, and they read more farm magazines.

Table 1. Economic Results Obtained by Farmers with Different Levels of Education
The figures show the relative size of the family labour earning per farm and year [2]

Size of farms, ha.	Farmers educated at agricultural schools	Farmers without agricultural school education
Under 10	100	97
10–20	100	73
20–30	100	79
Over 30	100	50

While we are analysing how the economic results on the farms depend upon the educational level, I may mention also an investigation which has shown how economic results vary between age-groups in agriculture. The results are given in the Figure.

This suggests that younger farmers invest a great deal at the beginning of their careers and less as they grow older. They also have the best



Operational results and level of investments as a function of the farmer's age [3].

operational results. These observations also suggest that the goal of the farmer is not constant; it varies with his age.

In the following part of the paper I refer to and discuss some experiences from various kinds of extension work in farm management. First, I shall mention an investigation into farm management advisory work in a county in southern Norway [4]. A specialist in farm management was

engaged by the Norwegian Institute of Agricultural Economics to experiment with various methods of information service and to work out economic plans for the farmers. He also edited a local farm magazine in which he mainly discussed economic problems. After working in the district for 3 years, he asked the farmers which information sources they had used most frequently in their work. The answers are given in Table 2.

Table 2. The Use Made by Farmers of Various Information Sources
(Answers from 171 farmers)

	Total	Percent
Local farm magazine (edited by the local adviser)	171	100
Agricultural articles in newspapers, magazines and books	164	96
Agricultural programmes on the radio	155	91
Demonstrations	131	77
Meetings of farm groups	104	61
Personal contact with the extension service	101	59
Courses (mainly farm management)	61	36

The local farm magazine and articles in newspapers and magazines seemed to be the sources most frequently used. The farmers were also asked to rank the sources by their value for their own purposes (a qualitative test). The results are given in Table 3.

Table 3. The Farmers' Ranking of the Various Information Sources
(The figures show their relative values)

Agricultural articles in newspapers, magazines and books	180
Courses	111
Local farm magazine	121
Demonstrations	87
Personal contact with the extension service	83
Agricultural programmes on the radio	64
Meetings of farm groups	33

Articles in newspapers, magazines and books also seem to have a good qualitative effect. The same can be said about courses and local farm magazines. The fact that the items changed places in the two tables shows that the quantitative and qualitative effects of the information sources were different.

A system of pilot farms started in Norway in 1949 *. Since that time pilot farms have spread to nearly all districts in the country, giving a good deal of information. One interesting and important observation is that the increase in operational profit on these pilot farms was much larger than on comparable farms ("average farms"), see Table 4.

Table 4. Changes in Economic Results on Pilot Farms and Other Comparable Farms During a 6-year Period
(Year of start = 100)

	Pilot farms	Comparable farms
Receipts	182	135
Expenses	183	140
Business gain	179	126
Labour earnings per hour	177	133
Net incomes	169	130

A further observation is that the pilot farms had a great influence on their neighbours. However, this seemed to depend a good deal upon how the local extension service made use of the pilot farms in their work.

A new experiment in Norway is extension work in smaller groups (25-50 farmers). The members of a group make an arrangement with an agricultural engineer whose task it is to advise them†. The experiment is quite new, and it is difficult to draw definite conclusions. Some problems which have occurred are the following:

(1) Difficulties in making the farmers understand what economic planning consists of (communication problem).

(2) Many farmers are not willing to pay a sufficiently high fee for this advice. One of the reasons is probably the farmers' difficulties in estimating the value of systematic planning.

(3) The arrangement requires great skill on the part of the agricultural engineer, since he must know the theoretical as well as the applied part of several disciplines.

At present it is difficult to say whether these "planning groups" will increase or decrease. It seems important that the farmers should be thoroughly informed about what membership involves, before they join. It is also necessary to help the engineers in their work, for example, by supporting them with data and material for working out plans. And they

* A pilot farm is a farm where the owner contracts with the local extension service (in cooperation with the Norwegian Institute of Agricultural Economics) to cooperate with the experts when working out plans for the farm. The economic results are followed and analysed during a following 6-year period.

† So far the Government has supported the cost of keeping the engineers.

should arrange courses, make summaries of the farm records etc., so that the farmers feel that they increase their profits by being members. An alternative might be a "freelance system", i.e. where the farmers call for an agricultural engineer and pay him individually for working out plans. This is well known in other countries.

At the beginning of this paper I referred to a research worker who believed that education—and we may extend this to "the human factor"—is probably an important factor of production. Experience of agricultural extension work seems to manifest this. It is educated young farmers who more easily grasp the new ideas which lead to higher productivity, and with whom the service finds it much easier to communicate.

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