

The creative ways of improving the enterprise's financial outcome

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Abstract: The aim of the paper is to propose a discussion about five ways of improving the effectiveness in an enterprise as a result of singular decisions in the light of the rational managing principle as it has been understood so far as well as in a proposed extended version. The results of authors' researches indicate that the rational managing principle, also in the meaning *ex ante*, does not exhaust the complexity of this issue. The authors suggest an extension of the content of this principle. The improvement of the enterprise's financial outcome may be achieved in five ways. There are 25 variants of the change of the production value with respect to the change of the total or individual costs.

Key words: rational activity, rational managing principle, ways of improving the financial outcome

The researches were conducted in years 2003–2008 in 157 specialized milk farms located mainly in the Polish Lodz Macro region. They concentrated on the economic and organisational conditions of the milk production profitability and, what is more, they were also an occasion to observe four, and in two farms even five, ways of improving the milk production profitability.

The existence of the market in the long term demands, from the economic entity, a continuous rationalisation of the production process, taking actions to maintain the highest production quality and in the same way to guarantee the highest purchase prices, while decreasing the average unit cost. It is very difficult to satisfy all the aims, because it requires from the producers (managers) permanent efforts and using all the tools, not only in the technical and technological meaning, but also in the organisational and economic one (Cheung 1974). What is most important is optimization of the scale of production, production intensity and expenditure substitution (Józwiak 1998, Jeníček 2006).

It is necessary to emphasise that the criteria and measures of effectiveness are connected with the specific action or with an evaluation of the results of the action which was taken earlier. Effective action should be considered in a dynamic view and show that certain actions at a specific time were right with respect to both costs and effects. The economic entities and farms effectuate different changes in the incurred costs, as well as in size and quality of

production (Britton and Hill 1975). These changes stem from adjusting to the changes in prices of the means of production and changes in the sales price of the produced agriculture goods, so they concern a long-term perspective.

It is obvious that management, profitability, innovativeness, effectiveness and rationalisation of costs are the concepts which are content-related to each other. It is worth emphasising that in these farms, the ways of improving the milk production profitability had a dynamic character. They resulted from changes in: milk price, price of the means of production as well as the kinds and size of expenditure.

THE PROPOSITION TO EXTEND THE RATIONAL MANAGING PRINCIPLE

The basis to investigate the production effectiveness is the rational managing principle. Lange (1975) defined it as a general principle of "...rational acting in conditions of a defined goal and means of action. According to the principle, the maximal degree of goal realization (Katz and Khan 1979) can be achieved by acting in such a way to either gain maximal goal realization at a given expenditure level or to use minimal expenditure at a given level of goal realization. The first case is called the principle of maximal effect (Emerson 1926) or the principle of maximal efficiency. The second one is called the principle of minimal expenditure of means or the principle of

saving the means". This issue with its definition is commonly known and used in Poland (Manteuffel 1979; Kierul 1980; Tomczak 1983; Zietara 1998; Juszczyk 2005; Wasilewski 2005 and others).

In the literature of the subject concerning rational acting in production, concepts such as profitability and effectiveness are discussed rather widely; they do not exclude each other and it can be said that they complement one another at different levels of specificity. In this case, we mean the criteria, ratios and measures (Rothbard 1979) of actions taken in the past to improve the financial income (evaluation *ex post*), and the possible future actions (evaluation *ex ante*) (Siudek and Zawajska 2012). We are not thinking about the rational managing principle here because the principle just indicates different ways of acting. Only when we already have different ways of acting can we make an evaluation of them (Lange 1971).

Based on the authors' observations, it can be stated that different directions of changes and various combinations of rational actions in production are possible. They are not limited, as Oscar Lange suggests, to the maximal effect in case of the unchanged expenditure or to holding the same production level at the minimal level of expenditures. So far, the depiction of this issue has not exhausted its complexity (Piskorz 1990) and all of the possibilities of rational actions. In the authors' opinion, there are five variants of the rational managing principle. Apart from the two mentioned above, there are three more:

- increasing costs with the simultaneous even bigger increase of the production value (intensive variant),
- decreasing the production value with the simultaneous even bigger decrease of production costs (extensive variant),
- increasing the production value with the simultaneous decrease of production costs (short-lived variant, possible as a result of the reorganization

of neglected units and the elimination of obvious mistakes).

The intensive variant is coherent with the proposition introduced by Halcrow (1980), showing that in the rational managing principle, there is a third criterion, that is achieving an increase of production through such an increase of expenditures, in which the increase of costs does not exceed the increase of the production value (Buchta 2004).

It is also important to think that the relation between the marginal cost and marginal effect, as a result of making a decision, could possibly be evaluated after the end of the production cycle. In industry, this is possible, in a physical sense, in a short period of time. In agriculture, this time is generally much longer (Kirzner 1979).

The five variants of realization of the rational managing principle can be introduced in graphics.

All of the graphs presented above, depicting the realization of the rational managing principle, contain a simplification of the economic life phenomena. They suggest a linear relationship between cost and effect (production value), while this relationship is rarely linear (Pasour 1981). Apart from that, taking into consideration the *ceteris paribus* principle, such relationship in a simplified form can be accepted if at a certain moment it stems from a single action and causes only little changes in the cost and production value.

Moreover, it should be emphasised that the function curve of any kind of costs is not linear. It is a confirmation that the relationship between costs and the production value may only partly be similar to the linear one. It should be noticed that variant I and II of effectiveness improvement may have a character that can be a result of a technological progress or an improvement in the production organization. Then,

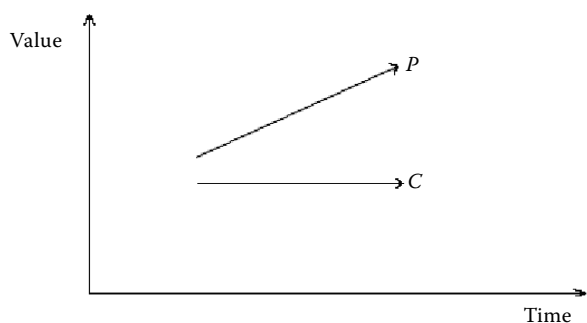


Figure 1. The rational managing principle, variant II, semi-intensive

Source: author's own study

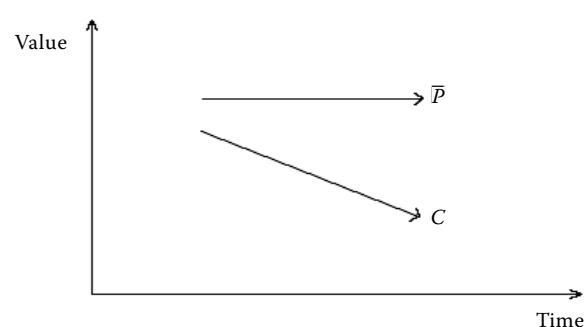


Figure 2. The rational managing principle, variant III, semi-extensive

Source: author's own study

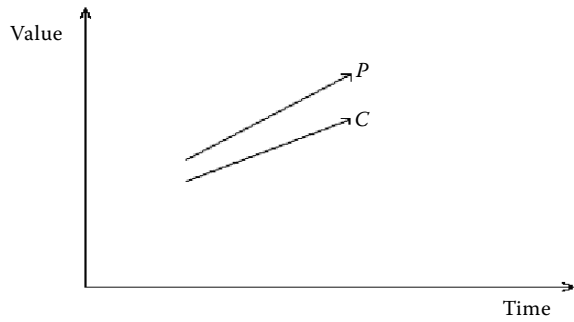


Figure 3. The rational managing principle, variant I, intensive

Source: author’s own study

further basic changes in the production technology cause a change of the whole production function. Consequently, the nearly linear relationship between costs and production has been getting longer.

Such a situation could appear, for example, if a farmer replaced hay with hay-silage, then brought a more efficient breed of cows, then bought a fodder wagon and introduced a mono-diet, e.g. with the soya bean protein. At the high and increasing level of intensification of different elements of the development, despite decreasing the effectiveness of a further expenditure, a segment of relationship between costs and a production value that is similar to a linear one may significantly lengthen.

It should be taken into account that the variant IV of the realization of the rational managing principle is possible if, due to a noticeable increase in the price of one of the means of production, it is worth to resign from or limit this mean, because this resignation or limitation will cause a lower decrease of the production value than the value of its purchase. The situation is similar in the case of variants II, III and V (which is connected with the neglected units). If we want all

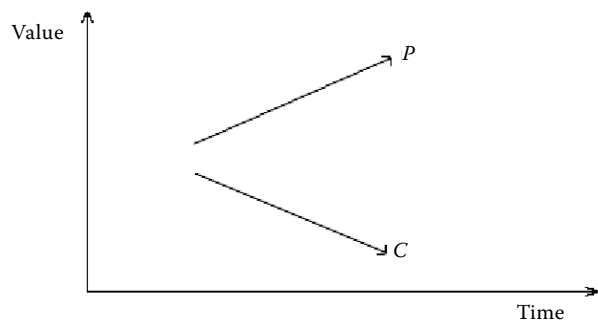


Figure 5. The rational managing principle, variant V, short-lived, possible as a result of the reorganization of the neglected units

Source: author’s own study

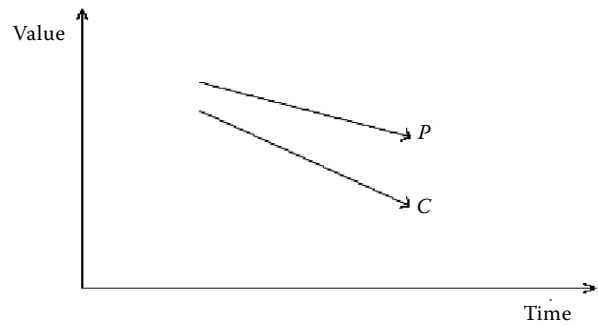


Figure 4. The rational managing principle, variant IV, extensive

Source: author’s own study

costs to remain at the same level and simultaneously raise production, it is possible when, e.g. in the conditions of competition in the market, a new mean of production occurs and the mean has a better quality, gives a higher production growth and its cost per 1/ha or per 1 cow is the same as that of the mean of a worse quality that was used so far. However, this situation is rather rare, because most often a new production mean of a better quality has a higher price. A situation that happens more often is when a farmer (manager) notices with a time delay that there exists in the market a production mean, which can be bought for the same price as the mean having been bought so far and which contains, for example, a more of pure component and consequently causes a higher increase in production. A similar situation appears when e.g. a farmer notices that buying the same amount of the urine artificial fertilizer as so far he is able to use some part of it not only to fertilize soil, but also to use some part of it to fertilize leaves. What a farmer may achieve this way is a higher fodder production.

The same situation is in the variant III (the principle of saving the means). We can suppose that the

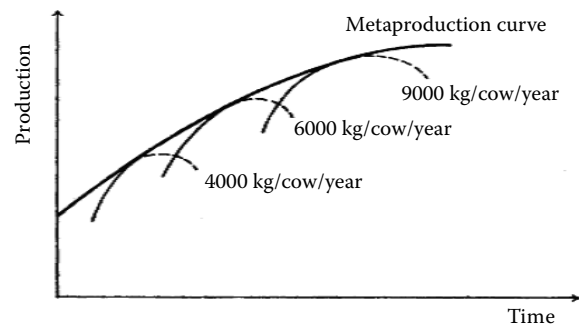


Figure 6. Relationship between production functions and the meta-production function

Source: author’s own study based on graph 1/II (Biernacki 1997)

farmer had a smaller amount of money and bought less artificial urine fertilizer than so far, but for the first time, he used some part of it in silage, in a correct proportion. As a result, despite lower costs and a lower quantity of the fodder production, the milk production did not decrease.

Sometimes in a seemingly modern farm with an intensive or even a very intensive production, but with an organizational neglect, there is a chance to use the variant V of the rational managing principle (to decrease costs and at the same time to increase production). Let us suppose that the farm achieves 6000 l milk per 1 cow per year. A new owner comes and decides to decrease the most expensive item in all expenditures, which is connected with the purchase of a huge amount of a high protein fodder and expensive additions, and simultaneously with improving the silage quality, produced near the farm (not far away as it was before). The result is an increase in the milk production and a decrease of costs. It is worth to emphasise that the solutions resulting from the variant V are not effective for ever and there is a need to find new ways of increasing the production effectiveness by one of the four variants mentioned above.

Summarizing the considerations concerning the application of these five variants of the rational managing principle, they can be recognized as useful because they give a basis for improving the economic entity's effectiveness in the time perspective.

The producers (managers), depending on the internal situation and changes in the prices of both the means of production and the goods that are produced by them, use all methods stemming from the rational managing principle. The choice of a way to sustain and improve the production profitability is made by the producer. These decisions have a fundamental importance, they may be right or wrong, and they can result in either better or worse production profitability. If the production profitability *ex post* in the farm or company has been getting worse, it means that the producer has made the wrong decision when adapting to the economic environment, because:

- the cost increase was bigger than the increase in the production value, or
- the production value has not changed, but the costs increased, or
- the costs in the enterprise have not changed, but the production value decreased, or
- the costs decreased and the production decreased as well, but by a higher value, or
- the costs increased and simultaneously the production value decreased.

When the production process is long, complicated and characterized by a quick and expensive technological progress, it contains many elements which can change in comparison to the previous period of time. It is important that in these particular situations, the farmer (manager) can use five variants of the rational managing principle, discussed above. After a certain time, e.g. after a year, the particular elements of adjusting to the changes of a situation in the market create a general economic production effect, which is the result of the particular decisions. The financial effects of single changes can cancel each other or get stronger, depending on the positive or negative effects and their absolute value. As a result, the producer (manager) achieves a better or worse profitability in comparison to the previous period of time. The better or worse profitability is generally an effect of a correct or incorrect adjustment strategy, stemming from a dominance of one of the five variants of the rational managing principle.

Basing on five years of a detailed research concerning the milk production profitability, the authors state that a farmer's (manager's) ability to use all the variants of the rational managing principle is the essence thanks to which an improvement of the production profitability can be achieved in the particular years. Then, "the skill of playing all the instruments" of the rational managing principle with the domination of the best instrument (variant), which is a result of changes on the market, in a given period of time may lead to economic success. Undoubtedly, it needs much of the up-to-date knowledge and practical skills on the side of a farmer (manager).

What has a significant importance are the financial results of the particular changes, their continuity or lack of it within a given variant of the rational managing principle, that means a realization of not only the short or middle-term goals, but also a several-years-long strategy of the economic entity's development. Depending on the priorities, different strategies for the given economic entity can be formulated, based on the dominance of the given variant of the rational managing principle, i.e.:

- The strategy of intensive production rationalization (variant I): The essence of the changes it is to rationally increase the mean turnover and fixed assets. This causes an intensification of production. The fixed assets cause an increase in fixed costs and simultaneously give a chance of a further increase in production. The increase in the production value should be bigger than the cost increase;

- The strategy of a semi-intensive production rationalization (variant II): The essence of the changes it is to optimize the costs structure, without changing their general value. The result is an increase of the production value in the aspect of quantity and/or quality. The realization of this strategy indicates that so far the costs structure and/or the use of resources in a short-term perspective were not optimal; however, in a long-term perspective the adjustment of the costs structure was proper;
- The strategy of a semi-extensive production rationalization (variant III): The essence of the changes is to decrease the costs and to keep the production value at the same level. This strategy is possible thanks to the substitution of the mean turnover and/or fixed assets or employment;
- The strategy of extensive production rationalization (variant IV) is realized by changes, the essence of which is to decrease costs and the production value, but the value of the decreased costs has to be bigger than the production decrease. The realization of this kind of strategy suggests that so far the intensification in a specific area of production was too big and the marginal cost was higher than the price, or the sold fixed assets were far too expensive (irrationally) with regard to the scale of production.
- The strategy of production rationalization by the elimination of obvious mistakes in the neglected units (variant V): If some mistakes show up, this strategy has to be undertaken as soon as possible. The important thing is that these mistakes are noticed in the first instance and that the farmer (manager) would like to remove them. It is also important that there is a possibility to remove those mistakes. This kind of situation may appear only after a takeover of an economic entity or farm by a successor, buyer or new manager. If this situation appears, it has a singular and a short-lived character.

PURPOSES AND RESULTS OF THE INDIVIDUAL DECISIONS IN AN ENTERPRISE

Taking into account the earlier considerations concerning the rational managing principle, the authors state that there are 25 ways of change of a production value with respect to a change of the total cost structure, cost increase or decrease. It should be emphasized that the production value can change only as a result of a change or several changes. Even if the value of the total costs concerning production

does not change, it does not mean that nothing has been changing in the terms of optimizing the proportion of the particular elements of the cost structure. Therefore, if the entrepreneur wants to increase the production, while keeping the costs on the same level (semi-intensive way of production development), he/she should make such changes, the essence of which would be either a better choice of the proportion of the particular production factors or a beneficial assortment substitution of the same production factor, or both. However, absolute changes of the expenditure quantity, especially of costs, must lead to the quantity and/or quality changes of the produced goods.

Taking into account the above considerations, if the entrepreneur wants a change in the shape of an improvement of production effectiveness, especially if he/she wants to increase the gross profit of the enterprise, many changes are done. Then, many decisions have been made that form the enterprise development strategy, in which one of five variants of the rational managing principle is dominant. Though, each single decision is caused by the change of cost or costs in the production process. Due to a singular change, the costs may:

- (a) increase
- (b) not change, but the proportion of the particular elements must have changed
- (c) decrease

The production value, as a result of a

- (a) right
- (b) neutral or
- (c) wrong

singular decision may change in 25 ways. The most important issue of the authors' considerations is the recognition that the production value is a quotient of the produced goods quantity and their price, whereas the price is a function of quality and originality. According to the authors, the quality of a durable product is a set of its features which ensure reliability and the planned time of exploitation, or even longer. In turn, the originality of a durable product is understood as a set of features which ensure satisfaction of new functional needs or/and aesthetic in a new and unusual way. Satisfying new functional needs or/and aesthetic is done by the studies and then an application of innovation in the production process.

MEASURES

When we use a symbol Q1 for a quantity of produced goods and Q2 for a price, due to a singular decision

concerning a change in the total cost structure, both the quantity and price of the produced good may:

- (a) not change at all, in this case Q1 and Q2 has the symbol “0”;
- (b) change as much as the increase (positive) of costs, in this case Q1 and Q2 are given the symbol “+”;
- (c) change more than an increase (positive) of costs, in this case Q1 and Q2 are given the symbol “++”;
- (d) change as much as the decrease of costs (or change less than an absolute value of costs decrease), in this case Q1 and Q2 are given the symbol “-”;
- (e) change more than the decrease of costs and not less than twice, in this case Q1 and Q2 are given the symbol “--”.

A measure of the cost change can be the percentage of the total costs change or a change in currency units, e.g. zł. ($\Delta \%$, Δ zł.). Similarly, a measure of the price change can be the percentage change of price or a change in currency units ($\Delta \%$, Δ zł.). In case of a change in a quantity of the produced goods, a measure can be the percentage change of the produced goods or a change in physical units ($\Delta \%$, Δ units, Δ kg).

The essence of a singular decision is “a kind of dance between the changes” of the total costs, quantity and price, which has the aim of improving the effectiveness of management and production on the changeable market.

In an intensive variant of the rational managing principle, due to an increase of costs (+), the entrepreneur expects that:

- the increase of the production quantity will be bigger (++) than the increase of costs (+), whereas the increase of price will be bigger (++) than the increase of costs; area 1 (++++), or
- the increase of the production quantity will be bigger than the increase of costs (++) , whereas the increase of price will be as big as the increase of costs (+); area 2 (+++), or

- the increase of the production quantity will be as big as the increase of costs (+), whereas the increase of price will be bigger than the increase of costs (++) ; area 3 (+++), or
- the increase of production quantity will be bigger than the increase of costs (++) , whereas the price will not change (0); area 4 (++) , or
- the increase of the production quantity will be as big as the increase of costs (+), whereas the increase of price will be as big as the increase of costs (+); area 5 (++) , or
- the quantity will not change (0), but the increase of price will be bigger than the increase of costs (++) ; area 6 (++) .

Taking into consideration a single management decision in a production process, in the intensive variant of the rational managing principle, there are six areas which guarantee a success, out of 25 possible. Four areas, from 7 to 10, neither improve the management effectiveness nor make it worse. The remaining 15 areas decrease the management effectiveness.

Despite keeping the total costs at the unchanged level (0), due to a change in the structure of the total costs (quantity optimization of production factors) or changes of the total costs components (quality – assortment substitution), the entrepreneur expects a production value increase (semi-intensive variant of the rational managing principle). Apart from the above-mentioned possibilities of a production value increase, which are characteristic for the intensive variant, the entrepreneur in the semi-intensive variant is also interested in a situation in which:

- the increase in production quantity will be bigger (++) than the decrease of price (-); area 7 (+), or
- the increase in production quantity will occur (+), whereas price will not change (0); area 8 (+), or

Table 1. The changes in production values (price and quantity) as a result of total costs change, change in total costs structure or change in elements of total costs

Quantity	Q ₁	Q1	++	Q ₁	+	Q ₁	0	Q ₁	-	Q ₁	--
Price	Q ₂										
Q ₂	++	(A1)	++++	(A3)	+++	(A6)	++	(A10)	+	(A15)	0
Q ₂	+	(A2)	+++	(A5)	++	(A9)	+	(A14)	0	(A19)	-
Q ₂	0	(A4)	++	(A8)	+	(A13)	0	(A18)	-	(A22)	--
Q ₂	-	(A7)	+	(A12)	0	(A17)	-	(A21)	--	(A24)	---
Q ₂	--	(A11)	0	(A16)	-	(A20)	--	(A23)	---	(A25)	----

Source: author's own considerations

Table 2. The changes of production values (price and quantity) as a result of total costs change, change in total costs structure or change in elements of total costs, variant I, intensive

Quantity	Q ₁	Q ₁	++	Q ₁	+	Q ₁	0	Q ₁	-	Q ₁	--
Price	Q ₂										
Q ₂	++	(A1)	++++	(A3)	+++	(A6)	++	(A10)	+	(A15)	0
Q ₂	+	(A2)	+++	(A5)	++	(A9)	+	(A14)	0	(A19)	-
Q ₂	0	(A4)	++	(A8)	+	(A13)	0	(A18)	-	(A22)	--
Q ₂	-	(A7)	+	(A12)	0	(A17)	-	(A21)	--	(A24)	---
Q ₂	--	(A11)	0	(A16)	-	(A20)	--	(A23)	---	(A25)	----

■ positive effect □ neutral ■ negative effect

Source: authors' own considerations

- the quantity of production will not change (0), whereas the price will increase (+); area 9 (+), or
- the increase of price will be bigger (++) than the decrease of production (-); area 10 (+).

In the semi-intensive variant of the rational managing principle, there are ten areas which guarantee success out of 25 possible. Five areas, from 11 to 15, do not cause any changes in the management effectiveness, while the remaining 10 cause its deterioration.

The next possibility is to keep the production value (P0) but decrease (C-) the total cost (semi-extensive variant, the principle of saving the means of production). As a result of decreasing the least productive components in the total cost structure, an entrepreneur expects that the production value will not change because:

- the quantity of production will considerably increase, whereas the quality (price) will decrease, i.e. the percentage increase of the production quantity (++) will be bigger than the absolute value of the percentage decrease of costs and the percentage

- absolute value of the price decrease will be the same as the percentage increase of the production quantity (- -); area 11 (0), or
- the quantity of production will increase, whereas the quality (price) will decrease, i.e. the percentage increase of the production quantity (+) will be as big as the absolute value of the percentage decrease of price (-); area 12 (0), or
- neither the quantity (0) nor price (0) will change; area 13 (0), or
- the quantity of production will decrease (-), whereas there will be a price increase of the same absolute value (+); area 14 (0), or
- the percentage decrease of the production quantity will be bigger than the percentage decrease of costs (- -) and at the same time the price increase will be as big as the absolute value of the production quantity decrease (++) ; area 15 (0).

In the semi-extensive variant of the rational managing principle, there are five areas, from 11 to 15, which guarantee success out of 15 possible. Areas from 1

Table 3. The changes of production values (price and quantity) as a result of total costs change, change in total costs structure or change in elements of total costs, variant II, semi-intensive

Quantity	Q ₁	Q ₁	++	Q ₁	+	Q ₁	0	Q ₁	-	Q ₁	--
Price	Q ₂										
Q ₂	+	(A1)	++++	(A3)	+++	(A6)	++	(A10)	+	(A15)	0
Q ₂	+	(A2)	+++	(A5)	++	(A9)	+	(A14)	0	(A19)	-
Q ₂	0	(A4)	++	(A8)	+	(A13)	0	(A18)	-	(A22)	--
Q ₂	-	(A7)	+	(A12)	0	(A17)	-	(A21)	--	(A24)	---
Q ₂	--	(A11)	0	(A16)	-	(A20)	--	(A23)	---	(A25)	----

■ positive effect □ neutral ■ negative effect

Source: author's own considerations

Table 4. The changes of production values (price and quantity) as a result of total costs change, change in total costs structure or change in elements of total costs, variant III, semi-extensive

Quantity	Q ₁	Q ₁	++	Q ₁	+	Q ₁	0	Q ₁	-	Q ₁	--
Price	Q ₂										
Q ₂	++	(A1)	++++	(A3)	+++	(A6)	++	(A10)	+	(A15)	0
Q ₂	+	(A2)	+++	(A5)	++	(A9)	+	(A14)	0	(A19)	-
Q ₂	0	(A4)	++	(A8)	+	(A13)	0	(A18)	-	(A22)	--
Q ₂	-	(A7)	+	(A12)	0	(A17)	-	(A21)	--	(A24)	---
Q ₂	--	(A11)	0	(A16)	-	(A20)	--	(A23)	---	(A25)	----

positive effect neutral negative effect A1–A10 are not connected with this variant

Source: author's own considerations

to 10, which increase the production value, are not connected with this variant of the rational managing principle. Four areas, from 16 to 19, do not make any changes in the production effectiveness, while six areas, from 20 to 25, cause its deterioration.

In the extensive variant, in which the core issue is a considerable decrease of the total costs and a lower decrease of the production value, the entrepreneur is interested in a situation in which:

- the percentage decrease of price will not be much bigger (less than twice) than the percentage decrease of costs (--), whereas the percentage increase of the production quantity will be equal to the absolute value of the costs decrease (+); area 16 (-), or
- the quantity will not change (0), while the percentage decreases of price will be smaller than the percentage decrease of costs (-); area 17 (-), or
- the percentage decrease of the production quantity will be smaller than percentage decrease of costs (-), whereas price will not changes (0); area 18 (-), or
- the percentage decrease of the production quantity is bigger than the costs decrease but less than twice

(--), whereas the price increase will be equal to the absolute value of the cost decrease (+); area 19 (-).

In the extensive variant of the rational managing principle, there are four areas, from 16 to 19, which guarantee success out of 10 possible. Areas from 1 to 15, which increase the production value or make it remain at the same level, are not connected with this variant of the rational managing principle. Three areas, from 20 to 22, do not cause any changes in the production effectiveness, whereas the remaining three, from 23 to 25, cause its deterioration.

In case of the last-fifth variant of the rational managing principle, in which the core issue is to decrease costs and increase the production value, it should be emphasized that in an appropriately managed enterprise, this variant should not occur at all. However, the authors' researches have shown that such a situation happens. A successor or a new owner, alternatively a new manager, may once introduce obvious changes, which should have been introduced long time ago and that will cause a decrease of costs and an increase of production.

Table 5. The changes of production values (price and quantity) as a result of total costs change, change in total costs structure or change in elements of total costs, variant IV, extensive

Quantity	Q ₁	Q ₁	++	Q ₁	+	Q ₁	0	Q ₁	-	Q ₁	--
Price	Q ₂										
Q ₂	++	(A1)	++++	(A3)	+++	(A6)	++	(A10)	+	(A15)	0
Q ₂	+	(A2)	+++	(A5)	++	(A9)	+	(A14)	0	(A19)	-
Q ₂	0	(A4)	++	(A8)	+	(A13)	0	(A18)	-	(A22)	--
Q ₂	-	(A7)	+	(A12)	0	(A17)	-	(A21)	--	(A24)	---
Q ₂	--	(A11)	0	(A16)	-	(A20)	--	(A23)	---	(A25)	----

positive effect neutral negative effect A1–A15 are not connected with this variant

Source: author's own considerations

Table 6. The changes of production values (price and quantity) as a result of total costs change, change in total costs structure or change in elements of total costs, variant V, elimination of obvious mistakes

Quantity	Q ₁	Q ₁	++	Q ₁	+	Q ₁	0	Q ₁	-	Q ₁	--
Price	Q ₂										
Q ₂	++	(A1)	++++	(A3)	+++	(A6)	++	(A10)	+	(A15)	0
Q ₂	+	(A2)	+++	(A5)	++	(A9)	+	(A14)	0	(A19)	-
Q ₂	0	(A4)	++	(A8)	+	(A13)	0	(A18)	-	(A22)	--
Q ₂	-	(A7)	+	(A12)	0	(A17)	-	(A21)	--	(A24)	---
Q ₂	--	(A11)	0	(A16)	-	(A20)	--	(A23)	---	(A25)	----

positive effect neutral negative effect A11–A15 are not connected with this variant

Source: author's own considerations

The fact that this variant has appeared in practice means that the ownership and/or management changes were introduced too late. In the light of this, it is also important to note that the previous owner or manager could not use this variant, because he/she did not see such a possibility. Only a new owner or a new manager may, but does not have to, see and use the best variant of the rational managing principle. In this variant, the production value has been increasing and the entrepreneur is interested in areas from 1 to 10, analogically as in the variant II (semi-intensive variant of the rational managing principle). Areas from 11 to 15 are not connected with this variant, because it would lead to a semi-extensive way, so in variant V, there are 20 areas of possible changes in the production value. Four areas, from 16 to 19, do not cause any changes of the production effectiveness, whereas the remaining six, from 20 to 25, deteriorate it.

The probability of changes in the production value is different and depends on the kind of branch, production intensity, the access to knowledge, innovative solutions, financial resources, liabilities, management qualifications, motivation and many other factors.

There is a need of a further and deeper scientific research in this area.

Nevertheless, on the initial stage, making a big simplification that the probability of an occurrence of each area is the same, basing on data from Table 7, we may state that taking into account all variants of the rational managing principle, the probability of success due to an increase of costs (variant I, intensive) is the lowest among all variants, whereas the probability of a failure – negative effect – is the biggest. It seems that increasing costs is the most risky way to improve the production effectiveness. Therefore, increasing costs needs an especially deep consideration each time. This situation is quite different in the case of variant V – elimination of obvious mistakes. This variant is the best in the terms of the enterprise effectiveness; therefore, it can be expected from a new manager that he will be able to notice the possibilities of this variant of the rational managing principle. The variant V gives the biggest chances of success (50%) and, just as the variant IV, the lowest chances of negative effects (30%).

Assuming that in the evaluation of the particular variants of the rational managing principle the

Table 7. Numerical and percentage structure of areas which has a positive, neutral and negative effect on production effectiveness, depending on the variant of the rational managing principle that was used

Variants	Areas (number)			Areas share (%)			
	total	positive	neutral	negative	positive	neutral	negative
I	25	6	4	15	24	16	60
II	25	10	5	10	40	20	40
III	15	5	4	6	33	27	40
IV	10	4	3	3	40	30	30
V	20	10	4	6	50	20	30

Source: author's own calculation

most important is the biggest probability of success and then the lowest probability of failure, it may be concluded that:

- variant V (elimination of obvious mistakes) is the best in terms of the effectiveness, 50% of positive areas and 30% of negative ones; this variant should be applied as the first;
- variant IV (extensive) is the second best (no large decrease of production value as a result of a significant total costs decrease due to an elimination of assortment, the marginal cost of which is higher than its price), 40% of positive areas and 30% of negative areas;
- variant II (semi-intensive) is the next in this scale (production increase as a result of optimizing changes in the total costs structure or the quantity-assortment substitution, while keeping the total costs level unchanged), 40% of positive areas and 40% of negative areas;
- variant III (semi-extensive) – “the principle of minimal expenditure of means” or “the principle of saving the means”, keeping the production value and decreasing costs, 33% of positive areas and 40% of negative areas;
- variant I (intensive) – “the principle of maximal effect” or “the principle of maximal efficiency” is the most risky one; increasing costs, expecting a higher increase of the production value, 24% of positive areas and 60% of negative areas.

Lange used the term “the principle of maximal effect” for the variant II – semi-intensive, but in the authors’ opinion, it suits better to the variant I – intensive. If we really want to achieve the maximal effect – i.e. the maximal profit, we have to increase costs and the production value as long as the marginal cost level is the same as the price. It is connected with all production assortments in the given enterprise. Taking the above considerations into account, “the principle of maximal effect” should be identified with the intensive variant of the rational managing principle.

To sum up, it is worth mentioning that the profitability of production may be understood exactly as the quotient of the production and costs or as a plus difference between the production and costs. In the researches, the direct profitability index (production / direct costs) and the direct surplus (production – direct costs) were used. A rise of the direct surplus was simultaneous with a rise of the direct profitability. When the marginal cost was at the same level as the average costs, the maximal direct profitability was

achieved. A further increase of the direct surplus, to the point when the marginal cost was the same as the price, caused a decrease of the direct profitability level, but it was favourable for maximization of the direct surplus. It is consistent with the manager’s or producers economic point of view because it causes an increase of enterprise income; however, it does not realize the principle of saving the means. Maximization of the direct profitability needs a wide use of this principle, but the enterprise income in this case is smaller than the potential one. If a manager or owner achieves some direct profitability, it gives an information how much he/she has increased the production value, own financial means and direct costs. In the case of the direct surplus, we are informed about the value increase from a change in the enterprise income (without fixed costs). It is important that the producer has financial means and can maximize the direct surplus. It is also important when financial means in the enterprise are a minimal factor, and in such a case the manager has to maximize the direct profitability. In the first case, both the volume of production and the unit cost are bigger. In the second case, both the volume of production and the unit cost are smaller. It has micro- and macroeconomic meaning. It is profitable for an enterprise to maximize the direct surplus as well as the enterprise income in a situation when the owner has financial means at the appropriate level. If this condition is not fulfilled, the manager’s entrepreneurship has to be measured by an ability to maximize the direct profitability.

CONCLUSIONS

The authors propose a modification of the rational managing principle into the following one: The rational managing principle is a general set of economically profitable ways of acting in the conditions of clearly determined aims and means of operation. The improvement of the aims’ realization can be achieved in the following ways by:

- increasing costs, while simultaneously making a bigger increase of the production value (I way, intensive),
- keeping costs at a constant level, while simultaneously increasing the production value (II way, semi-intensive),
- keeping the production value at a constant level, while simultaneously decreasing the production costs (III way, semi-extensive),

- decreasing the production value, while simultaneously making a bigger decrease of production costs (IV way, extensive),
- increasing the production value, while simultaneously decreasing production costs (V way, short-lived, possible as a result of reorganization of the neglected units and the elimination of obvious mistakes).

Basing on five years of a detailed research concerning the production profitability, the authors state that a farmers' (managers') ability to use all those variants of the rational managing principle is the essence of this issue and thanks to this ability, the production profitability can be improved in several years. There is a need to emphasize that the production value can change only as a result of change or several changes.

Then, "skills of playing all the instruments" of the rational managing principle with a domination of the best instrument (variant) in the given period of time, resulting from price changes of the means of production and goods produced in the farm, lead to economic success. Undoubtedly, it is still necessary that a farmer updates his/her knowledge and practical skills.

In the authors' opinion, the rational managing principle makes it easier to evaluate the introduced changes, on the one hand, and to plan the production improvement in a short-, mid-, and long-term perspective, on the other hand. From the economic point of view, it allows to concentrate on the past and actual problems which have a short-term, operation and strategic meaning. Furthermore, production improvement is for the entity a basis giving a chance to exist and to develop in the time perspective. In the contemporary macroeconomic conditions, the economic entity's success means to exist in the market and not to worsen the financial condition. All in all, the existence of the economic entity is not only financially profitable, but it also has a fundamental social meaning.

Taking into account the earlier considerations concerning the rational managing principle, the authors state that there are 25 ways of change of the production value with respect to no changes of costs, costs increase or decrease.

Making order of the variants of the rational managing principle from the best to the worst one, with the assumption that the most important is the biggest probability of success and then the lowest probability of failure, it can be affirmed that:

- variant V (elimination of obvious mistakes) is the best in the terms of effectiveness, 50% of positive areas and 30% of negative ones; this variant should be applied as first;
- variant IV (extensive) is the second best (no large decrease of production value as a result of a significant total costs decrease due to the elimination of assortment, whose marginal cost is higher than its price), 40% of positive areas and 30% of negative areas;
- variant II (semi-intensive) is the next in this scale (production increase as a result of optimizing changes in the total costs structure or the quantity-assortment substitution, while keeping the total costs level unchanged), 40% of positive areas and 40% of negative areas;
- variant III (semi-extensive) – "the principle of minimal expenditure of means" or "the principle of saving the means", keeping the production value and decreasing costs, 33% of positive areas and 40% of negative areas;
- variant I (intensive) – "the principle of maximal effect" or "the principle of maximal efficiency" is the most risky one; increasing costs, expecting a higher increase of the production value, 24% of positive areas and 60% of negative areas.

The author is aware of the importance of this problem. Therefore, he invites to a further discussion.

REFERENCES

- Britton D.K., Hill B. (1975): *Size and Efficiency in Farming*. Saxon House, London.
- Biernacki A. (1977): *Zbiór zadań z ekonomiki, organizacji i rachunkowości gospodarstw rolniczych*. Praca zbiorowa. (Set of Exercises in Economics, Organization and Accountancy in Farms. Collective work.) PWRiL, Warsaw.
- Buchta S. (2004): Labour market and agricultural population. *Agricultural Economics – Czech*, 50: 529–534.
- Cheung S. (1974): A theory of price control. *Journal of Law and Economics*, 17: 53–71.
- Emerson H. (1926): *Dwanaście zasad wydajności*. (Twelve Rules of Efficiency.) ISO, Warsaw.
- Halcrow H.G. (1980): *Economies of Agriculture*. McGraw-Hill, New York.
- Jeníček V. (2006): International markets and their liberalization. *Agricultura Tropica et Subtropica*, 39: 124–129.
- Józwiak W. (1998): *Opłacalność produkcji rolniczej*. (Agriculture production profitability.) In: *Encyklopedia agrobiznesu*. (Agribusiness Encyclopedia.) Fundacja Innowacyjna, Warsaw.

- Juszczak S. (2005): Milk production profitability multiple regression analysis. *Electronic Journal of Polish Agricultural Universities (EJPAU)*, 8 (4).
- Katz D., Kahn R.L. (1979): *Spółeczna psychologia organizacji. (Social Psychology of Organization.)* PWN, Warsaw.
- Kierul Z. (1980): *Ekonomika i organizacja gospodarstw rolniczych. (Economics and Organisation of Farms.)* PWRiL, Warsaw.
- Kirzner I.M. (1979): *Perception, Opportunity and Profit.* The University of Chicago Press. Chicago.
- Lange O. (1971): *Ekonomia polityczna, Tom 1. (Political Economy, vol. 1.)* PWN, Warsaw.
- Lange O. (1975): *Dzieła, Tom 3. (Works, vol. 3.)* PWN, Warsaw: 384–385.
- Manteuffel R. (1979): *Ekonomika i organizacja gospodarstwa rolniczego. (Economics and Organisation of Farm.)* PWRiL, Warsaw.
- Pasour E.C. (1981): A further note on the measurement of efficiency and economies of farm size. *Agricultural Economics*, 32: 135–146.
- Piskorz W. (1990): *Metody mierzenia względnej efektywności technicznej produkcji rolniczej (The measure methods of relative farm technical production effectiveness.)* *Zagadnienia Ekonomiki Rolnej*, No. 1/2.
- Rothbard M. (1979): *Comment: The myth of efficiency.* In: Pizzo M.J.: *Time, Uncertainty and Disequilibrium.* D.C. Hath. Lexington.
- Siudek T., Zawajska A. (2012): How does the general economy and the agriculture sector performance influence the farm producer support in the OECD countries? *Agricultural Economics – Czech*, 58: 101–118.
- Tomczak F. (1983): *Relacja nakład – efekt w rolnictwie. (Relation expenditure – effect in agriculture.)* In: *Ekonomika rolnictwa, zarys teorii. (Agriculture Economics, Outline of Theory.)* PWRiL, Warsaw.
- Wasilewski M. (2005): Effectiveness and financial condition of private farms in relation to agricultural land area. *Electronic Journal of Polish Agricultural Universities (EJPAU)*, 8 (4).
- Zietara W. (1998): *Metodyczne aspekty oceny efektywności gospodarowania w rolnictwie. (Methodological aspects of evaluation the farming effectiveness.)* *Zeszyty Naukowe SGGW, seria Ekonomika i Organizacja Gospodarki Żywnościowej*, No. 34.

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