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RISK MANAGEMENT IN FARMING - AN APPROACH IN TURBULENT TIMES

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Introduction

1. Since 1973 uncertainty has taken on dimensions of sudden changes. Examples from what we have already seen are: Oilcrises, environmental chocks, food shortage, over-production, dramatic changes in interest rates as well as in inflation rates, changes from negative to positive real interest rates, computer revolutions, robotization. It is easy to guess that further surprises can be expected from biotechnology, new oilcrises, famine waves, poor management of agricultural policy and other sources. Turbulence is the hallmark of the time we experience.

2. Also other forces are rapidly changing the structure of farming. Increasing amounts of money per person are transferred through the farms. Farmers find themselves involved as much in the financial as in the production side of their business. Increasing demands on environment protection introduce new, often costly regulations into the production. Horizontal integration of the production up to the consumers doorstep is becoming a producer problem and production possibility. In many cases are expansions into non-food products such as fuels, tourism and small industry the only possibilities of survival for farmers not willing to go the part-time-route.

3. This time of rapid development and rapid changes requires from the farmer-manager

- a good understanding of the world around agriculture and the developments going on there;
- a permanent evaluation of the ongoing changes to identify the threats and possibilities coming up;
- a feeling for markets and what can be profitably sold in markets;
- a good entrepreneur, with a thorough knowledge of his own and the farms strong and weak points;
- an ability to identify and stick to essential goals;
- an ability to enthusiasm all persons involved on the farm and having them understand and accept main goals and critical sectors where fulfillment of production goals are essential;
- the building up of freedom to act at strategically best points in time.

Acting in this environment requires making decisions under extreme uncertainty, i.e. managing risk.

4. In this paper an outline will be given of a procedure possible to follow when making decisions on future actions on the farm level in environments and situations just described. It is based on ideas developed in business

economics and centers around the three notions of

- * Formulating goals and objectives
- * Development of business ideas
- * Strategic planning and management

A sensitive and sensible application of these three ideas in farm planning and management is risk management in farming under great turbulence.

5. The procedure stresses the importance in great uncertainty to formulate and accept clear goals for the firm at the same time as understanding and accepting changes in these goals when they have to be changed.

The procedure is based on the necessity to formulate a clear business idea for the firm. This idea is based on production for markets where the firm has clear comparative advantages over competitors, on production that the firm's manager and personnel knows better than others - i.e. based on excellence and uniqueness -.

The procedure is also based on the necessity to build up preparedness to react with changes when conditions are changing.

The following steps can be identified in the planning procedure:

- *Express existing goals
- *Identify threats and possibilities in the world around the farm
- *Indicate weak and strong points in present organization
- *Search for new market segments, production- and service ideas
- *Formulate possible alternative strategies
- *Test strategies against surprising future events
- *Indicate how to build up freedom to act for most promising strategies
- *Formulate on this basis
 - New strategy
 - New business idea
 - New goals

This planning procedure constitutes a management practice when an implication and a control function is added and it is used as a continuous feedback procedure.

Links to decision theory

6. Risk management in farming has a relevant theoretical foundation in decision analysis (see for example Anderson/Dillon/Hardaker 1977 or Barry 1984). In this the decision maker makes a choice between well specified actions in a surrounding which can be represented by a set of

mutually exclusive and exhaustive states each of which can be attributed a decision makers subjective probability to occur. After estimation of the consequences of actions in different states a rational choice of actions can be made.

A great number of experiences show that this model in many cases is applicable in practical decision making although usually a set of reasonable approximations are necessary to fit the real life situation to the theoretical model.

7. In my view it is fair to say that this decision analysis model can help the farmer to make good decisions in situations where subjective probabilities on at least approximately mutual exclusive states can reasonably easily be formulated. The simplest case is when states can be expressed in yield and price variations. But even this is not simple as setting up of the decision problem in the form required by the model requires both time and a skill in theoretical reasoning only rarely available when decisions have to be made.

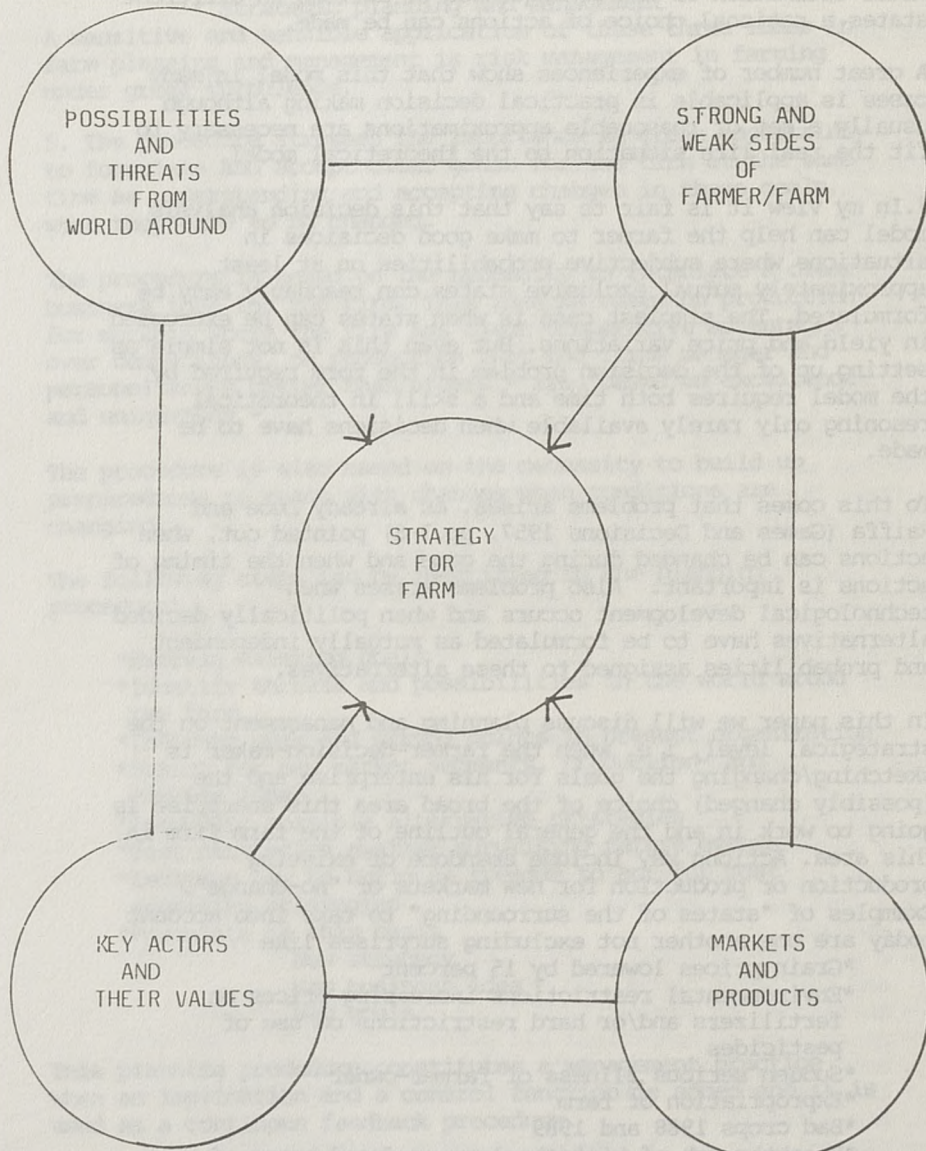
To this comes that problems arise, as already Luce and Raiffa (Games and Decisions 1957, pp.7-8) pointed out; when actions can be changed during the game and when the timing of actions is important. Also problems arise when technological development occurs and when politically decided alternatives have to be formulated as mutually independent and probabilities assigned to these alternatives.

In this paper we will discuss planning and management on the strategical level, i.e. when the farmer-decision-maker is sketching/changing the goals for his enterprise and the (possibly changed) choice of the broad area this enterprise is going to work in and the general outline of the farm firm in this area. Actions may include abandonment of existing production or production for new markets or "no-change". Examples of "states of the surrounding" to take into account today are one another not excluding surprises like

- *Grain prices lowered by 15 percent
- *Environmental restrictions increasing prices on fertilizers and/or hard restrictions on use of pesticides
- *Sudden serious illness of farmer-owner
- *Expropriation of farm
- *Bad crops 1988 and 1989
- *Breakthrough of biotechnology-produced means of production (feed, medicine, plants)
- *Rapid development of tourism and demand for recreational areas

The models for reasoning and decision making in this surrounding presented here are based on ideas around strategic planning developed in industry and business outside agriculture. Important authors with these ideas are Drucker,

FIGURE 1. A MODEL OF STRATEGIC PLANNING AND MANAGEMENT



(U. RENBORG 1988)

Lund&Lorentzen, Normann, Ohmae, Porter and others.

A model for strategic planning/management under great uncertainty

8. The structure of a possible model for strategic decision analysis is given in figure 1. The central part, the farmers strategy for his farm, is formulated as a reaction to four influencing images of

- * The world around the firm and the possibilities and threats coming from it,
- * The strong and weak points of firm and management,
- * The key actors and their values
- * Markets and products

The strategic planning can be looked upon as a process that paints as clearly as possible these four images and the way in which they change over time, and formulating as a reaction to these images the strategy for the farm-firm, building on the possibilities and strong points avoiding threats and weak points.

We can also speak about strategic management, which directs its interest towards the constantly changing images and acts to an interaction by adjusting existing strategy to changes in the four images.

9. A closer look at a possible inner structure of the four images may be:

- * Possibilities and threats from
 - technology - institutional changes -
 - economic and financial change - input and output markets
- * Strong and weak points of firm
 - human capital(entrepreneurship,knowledge) -
 - physical resources & flexibility -
 - financial resources & control - organization - R&D
- * Key actors values
 - family - customers - competitors
 - suppliers and market channels - state & community - banks - employed,consultants
- * Markets and products (selement)
 - product quality - price - distribution
 - stage of processing(?)

Figures 2 and 3 give examples of "possibilities and threats" and "strong and weak points" respectively from a strategic planning exercise for a Swedish farm.

10. The elements of strategic planning are, with these images as background:

- * Existing goals
- * Developing business idea
- * Possible strategies expressed in
 - markets - products & production
 - personell - economy and control
- * Test of strategies against surprises
- * Select strategies and build preparedness to act under changing conditions
- * Adjust business idea
- * Adjust goals, set subgoals and select control procedures

In the following sections some of the most important features of this strategic decision analysis will be discussed.

Figure 2. Possibilities and threats from the world around the farm

<u>Possibilities</u>	<u>Threats</u>
- Search for new markets outside food production " the country	- World overproduction capacity: lower grain prices
- Try horisontal integration	- Great uncertainty of rules in farm policy
- Contact entrepreneurs with development ideas	- Great uncertainty of rules in environmental policy

Figure 3. Strong and weak points of the farm

<u>Strong</u>	<u>Weak</u>
- Capable and cooperative staff	- Increasing monetary flow and weak economy control
- Very efficient production	- Marketing ability weak
- Modern and adequate farm machinery	- Liquidity/Solidity low
- Low investment needs	- Only knowledge in agriculture

Set and stick to your goals

11. There is no more important issue to remember in successful management in times of great turbulence than to have clear goals, and to both stick to them and be prepared to adjust them.

It is equally important to know that there are certain rather strict requirements which have to be fulfilled by the goal formulations for goals to be efficient means in the management process.

First goals have to be good representations of values held by those actively involved in the production process. Participation of different groups in goal setting is often important, like in the "Management by objectives" procedure. They also should be felt as realistic and possible to reach to serve as motivation in the management process. Goal fulfillment should also be possible to measure in a reasonably simple way. It should be possible to say WHO is responsible for the fulfillment of a specific goal, WHAT characteristic the goal should measure and HOW MUCH should be reached.

From what have been said it is possible to imagine that goals may exist on different levels in the organization. As a matter of fact we can speak of a goal structure being the goals on various levels in the organization and how they link together in a steering system for the farm.

Efficient goal structures are only those who make it possible for the manager to reach his ultimate goal for the farm. Efficient goal structures can look different for two identical farms depending on differences in personality of the manager. Good goal structures contain the smallest number of goals necessary for the manager to reach his ultimate goal for the farm.

12. Strategic planning starts with indications of existing goals. In many cases this exercise reveals that goals do not exist, that they are not clearly perceived or/and that goal fulfillment is not possible to measure. This is often a both painful and necessary experience.

Strategic planning ends with setting new goals for the farm. These goals, on various levels, are the starting points for all more detailed planning.

Strategic management falls again and again back to these goals: Are they fulfilled? Are they necessary to change? How have they to be changed?

Develop your own business idea

13. In uncertain times development of a business idea around which to organize the farm gives some stability to the organization. As a matter of fact the business idea can be looked upon as a part of the goal structure, as..

as interrelated goals indicating

- the combination of market and product the farm has specific advantages over others to be in
- the available unique knowledge which will be used and
- the unique production possibilities available on the farm that will be used.

In this short description of what constitutes a business idea the words "specific advantages" and "unique" are important. They indicate that it is important for success to build on what the individual farmer knows better and have better physical resources to produce than other farmers and entrepreneurs.

Building on these specific advantages give the business idea the important feature of not being easy to copy by others.

Figure 4 illustrates these features.

Begin in the market

14. In many industrialized countries the distance and contacts between farmers and customers in the market is increasing over time. Producers cooperatives and food industry form a link that often acts as a barrier for signals from the market to the farm. This has in some cases led to the production oriented farmer and a deterioration of farmers knowledge in marketing of products and services.

This is serious in times when the market situation for food products is so uncertain as now and the general surplus situation make marketing of non-food products and services a more promising alternative.

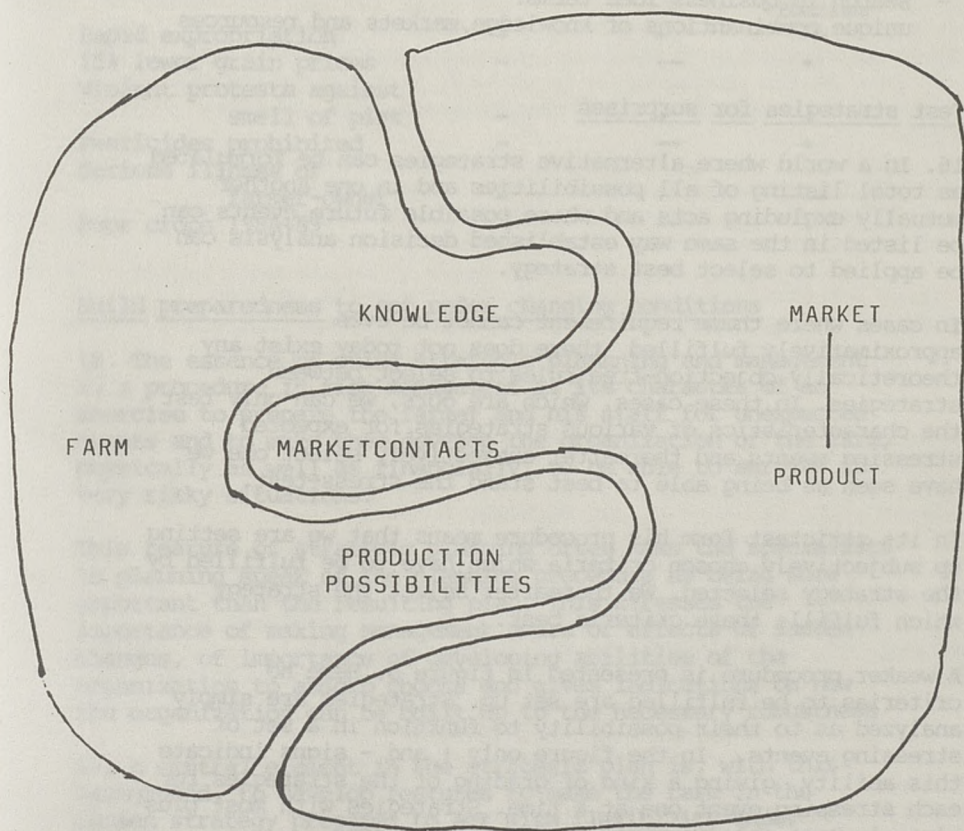
Necessary prerequisites for successful farming in these uncertain times are knowledge in marketing of products produced and starting of any planning activity at the customers in the market, not in the production on the farm.

And: What are the competitors doing, what are they planning?

The creative art of developing good business ideas

15. Observation and learning and creative search for new ideas are indeed important activities in uncertain environments. Recommendations how this can be efficiently made are very difficult to formulate. Experiments of various authors (Drucker, Ohno, Porter and others) usually conclude that creative hunting for new ideas and developing them to

FIGURE 4. A MODEL OF THE BUSINESS IDEA - STRESSING UNIQUENESS AND DOMINATION



(U. RENBORG 1988)

production strategies involve activities like:

- Travel, search, see, ask
- Early detection of changes in world around the farm
- Perception of production possibilities in new technology
- Search for needs not for products
- Experiment and start in small scale

Our earlier text includes recommendations to focus these activities through:

- Search for possibilities and avoid threats in the world around the farm.
- Exploiting strong and neutralizing weak points of management and farm.
- Search in business idea terms:
unique combinations of knowledge, markets and resources

Test strategies for surprises

16. In a world where alternative strategies can be formulated as total listing of all possibilities and in one another mutually excluding acts and where possible future events can be listed in the same way established decision analysis can be applied to select best strategy.

In cases where these requirement cannot be even approximately fulfilled there does not today exist any theoretically objection-free rules to select between strategies. In these cases, which are ours, we can only test the characteristics of various strategies for expected stressing events and thereafter subjectively select one we have seen as being able to best stand the stress-test.

In its strictest form his procedure means that we are setting up subjectively chosen criteria which have to be fulfilled by the strategy selected. We thereafter select the strategy which fulfills these criteria best.

A weaker procedure is presented in figure 5. Here no criterias to be fulfilled are set up. Strategies are simply analyzed as to their possibility to funktion in a set of stressing events. In the figure only + and - signs indicate this ability, giving a kind of grading of the strategies for each stressing event one at a time. Strategies with most plus signs is best able to resist indicated stresses.

It is possible to develop this procedure slightly further by making rough calculations of economic consequences of the stressing events on the strategies. It is also possible to assign subjective probabilities to the various stressing events and thus increase the - subjective - information value of the exercise.

An art in itself, which we cannot develop further here, is what has been called "generating critical surprises" (Delin 1971), i.e. formulate the stressing events for testing strategies.

Figure 5 Testing strategies against critical surprises.
A practical example

Surprises:	Strategies:		
	Existing grain+pigs	Only cash crops	Crops+ Farm Serv. +Tourism
Rapid expropriation	-	-	--
15% lower grain prices	-	--	+
Violent protests against smell of pigs	-	+	+
Pesticides prohibited	-	--	+
Serious illness of farmer-owner	-	-	--
Poor crops 1988+89	-	--	+

Build preparedness to act under changing conditions

18. The essence of using strategic planning and management as a procedure in risk management is its character of an exercise to prepare the farmer and his staff for unexpected events and to make them develop the organization of the farm, physically as well as financially, to be able to survive in very risky situations.

This feature of strategic planning often make the specialists in planning speak of the planning procedure as being more important than the resulting plan. This stresses the importance of making management aware of effects of sudden changes, of importance of developing abilities of the organization to absorb chocks and gives indications on how the organization can be built up to the necessary robustness

19. A central element in the strategic plan is, with this background, to develop features to make the farm in the chosen strategy prepared to act with flexibility under changing conditions.

The strategic role of financial control is increasing

20. During the last 20 years a drastic change of the internal structure of farm firms has taken place. Whereas in the 60-ies some 2/3 of costs were for labour and 1/3 for input goods (machinery, fertilizers, pesticides, feed) the relations are the opposite now. The result is that the flow of cash money through the full time farm has drastically increased.

This development means that farm management, which earlier was a job dealing with man-animal-machinery organization, now is a job where financial management is of the greatest importance. Often control of the financial side of the business is where both mistakes and gains can be most easily made.

How well are farm managers and management schooling equipped to deal with this question?

Back to the procedure of strategic planning

21. We can now go back to paragraph 5 of this paper, where the total structure of strategic planning is indicated. The last step in the procedure is to use all information gathered to formulate a new strategy, a new business idea and new goals.

This planning procedure constitutes a management practice when an implication and a control function is added and it is used as a continuous feedback procedure.

I place for critical evaluation of this forum the opinion that risk management in farming in turbulent times can greatly profit from a strategic planning and management according to the approach here outlined.

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