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## COOPERATION IN FARMING

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### Abstract:

*Cooperation in farming (co-farming) is an integrated cooperation between two or several independent farms. Co-farming allows farmers to redress disharmonies on the existing farms. These farms in the long run will be able to utilize economies of scale which would not have been possible in a continuing production. This is some of the preliminary findings from a Danish case-study in which nine co-farming groups (22 separate farms) were involved. These groups were followed in the initiating founding phase. In advising the potential participants in co-farming a model with a coordinated focus on cooperating conditions and their economic consequences have been used. In more integrated co-farming constructions, this model is shown to be suitable in giving farmers a certain overview of the consequences of creating a share-farm arrangement.*

### 1. Introduction.

In this paper some of the preliminary results of establishing co-farming among Danish farmers are described. In 1991 the Danish Ministry of Agriculture brought into effect a scheme to promote co-farming. As a part of this program, a three-year research project was created. In the first phase (1992), the aim has been to investigate problems of establishment. In the second phase of the project (1993-94), the aim is to look at day-to-day management in such groups.

Section 2 provides a short description of the idea of co-farming. How do the characteristics of co-farming compare with those of the traditional family owned farms? What is the motive behind co-farming, and what effects can be expected from co-farming? In section 3 outlines an example of a co-farm, and how farmers developed the idea and how they organized the cooperation. In section 4, a descriptive model for the decision process of establishing co-farming in this project is outlined. Characteristic of this model is the simultaneous focusing on terms of cooperation and their derived economic consequences. The preliminary findings are discussed in the last chapter. Analysis of the decision process suggests many external barriers limit the extent of co-co-farming in Danish Agriculture.

## 2. The idea in Co-farming.

### Characteristics:

Co-farms are characterized by cooperation in specific activities of the production process between two or more independent and separated farms. In the phase of founding, each farmer provides one or more production factors into the co-farm. Most often the farmers taking part add in different types of production factors - and to a different extent. The division of economic returns from the co-farm is based on an appointed relationship between the participating farmers.

Different cooperative constructions can be classified in a meaningful way in terms of *cooperating intensity*. The important elements in the concept of "cooperating intensity" is: numbers of transactions; amount of transactions; and the amount of specific investments within the cooperation. How intensive the cooperative construction should be, depends on the aims of the participating farmers. Inside the frame of the co-farm model it is possible to find everything from a purchase cooperation between two farms to a real fusion between several hitherto independent and separate farms (figure 1).

It is typical in a co-farming construction that the contribution of the participants to the cooperation is not similar. Some farmers, for example, offer their machinery while others may offer some of their land or buildings. It is possible to contribute with one or several of the following factors: working-force; capital; land; livestock; buildings or equipment.

### Motives and effects:

The family owned farm has a dominant position in Danish agriculture. The structure of agricultural holdings in Denmark are characterized by relatively small production-units and few rented farms. The average farm size in 1991/1992 was 35.9 ha. The cost squeeze in the area of traditional production combined with existing economies of scale will result in a continued rise in farm size. For those farmers who do not master or do not wish to enlarge their own farm, co-farming could be an alternative way of obtaining economies of scale.

Another motive to seek a co-farm construction could be the need for a smoother change when passing farms on to the next generation. There is a need especially for large farms to transfer the farm in full production. It can be difficult for young farmers to manage such large farms as a going concern. Co-farming implies that "buyer" and "seller" have the possibility to manage the farm in cooperation over

several years, enabling the younger farmer to draw on the knowledge of the retiring farmer.

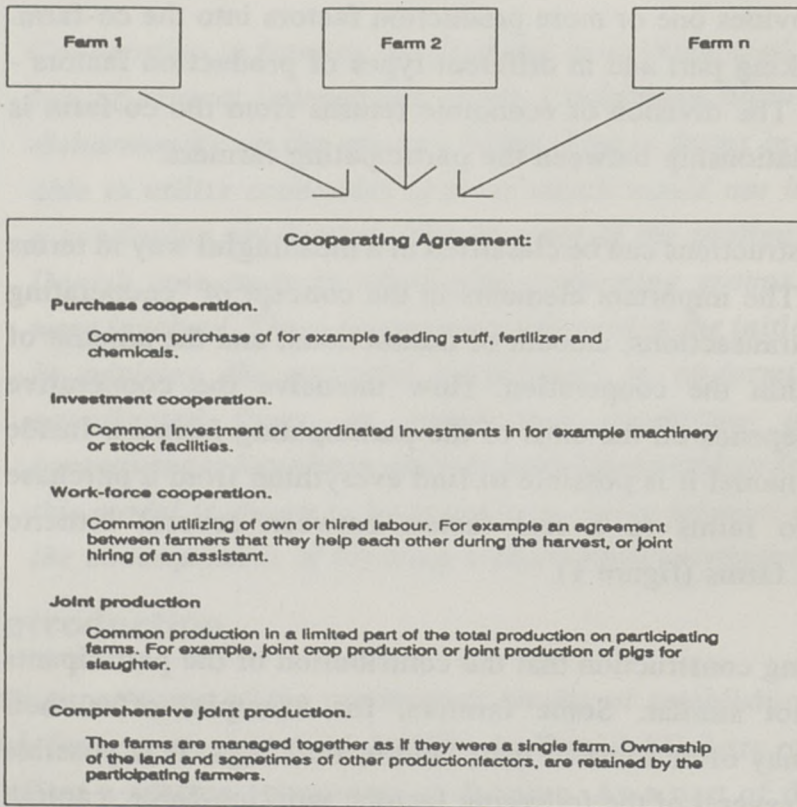


Figure 1: Establishing co-farming.

Norms and values in rural culture, where farmers want to be "the master in their own house", may result in a limited diffusion of co-farming. On the other hand, Danish agriculture has a long historical tradition of close cooperation in organizing marketing and consulting. This indicates that cooperation easily can be founded despite small production units and despite the involved farmers attachment of personal integrity. At present it is difficult to estimate the extent of co-farming in the future.

Through establishing co-farming, small farms have the possibility to obtain economies of scale normally reserved for bigger production units. Problems due to disharmony on single farms can also be redressed in a cooperation between two or more farms. Finally, the participants in a co-farming unit often have the possibility of starting a new production or developing a production, which would not be possible on the farms separately.

Co-farming also has certain work related and social effects. Farmers have the possibility to specialize, which makes it possible to obtain a better utilization of knowledge. A bigger production unit also improves the possibility for relief in case of holiday and illness. Finally an interplay between farmers could cause a sparring partner effect, which could lead to decisions of better quality.

The general effect of making a co-farming construction is to increase the potential of the participating farms.

Joining a more or less comprehensive cooperation, however, also results in a reduction of the farmers right to make their own decisions. At the same time management is going to be more complicated. Decisions have to be made through negotiation between the participating farmers and there is a risk that the construction would result in an inferior ability to act.

### 3. Example of co-farming.

Three full time farmers whose farms are situated nearby each other and whose fields almost form an adjoining area decide to form a co-farm unit containing the aggregated production on the three farms.

#### Farm A:

Specialized cash crop farming.

Farmer: 70 years old (not physically active).

Area: 125 ha (including tenancy).

Hired labour: 1 fulltime employed.

#### Farm B:

Specialized cash crop farming.

Farmer: 36 years old.

Area: 105 ha (including tenancy).

Hired labour: 1 fulltime employed.

#### Farm C:

Specialized dairy farming.

Farmer: 33 years old.

Livestock: 33 cows.

Area: 52 ha (including tenancy).

At present none of the three farms has economical problems and a continuing production would neither lead to problems in the short run. The participants however have spotted some possibilities to rationalize and improve efficiency which they could not obtain themselves.

**Farmer A:**

- \* Need to be relived from daily management responsibility, but at the same time does not want to sell the farm and he can not bear to follow a strategy of depreciation.
- \* The alternative to co-farming would be to hire another full time manager, because the present assistant is not capable of undertake this task. But A would not be relived from the overall decision responsibility. Simultaneously this strategy would not result in rationalizing effects.

**Farmer B:**

- \* Is a very skilful cash crop producer and he has the most modern equipment of the three production units. But at the same time his farm has been over-mechanized because of his passion for brand new machinery. He also has a machine shed and workshop capacity which exceed his own needs.
- \* By using building- and machinery capacity on this farm in a much bigger production it is possible in the co-farm unit to obtain substantial synergy effects.

**Farmer C:**

- \* Has the smallest and oldest production system among the three participants. He is not using hired labour on the farm and because of the working obligation he is locked-up on the farm.
- \* To a great extent he is prevented in enlarging and modernizing the farm due to the milk quota system.
- \* By co-farming it is possible, almost at once to gain well-ordered working and relief conditions.

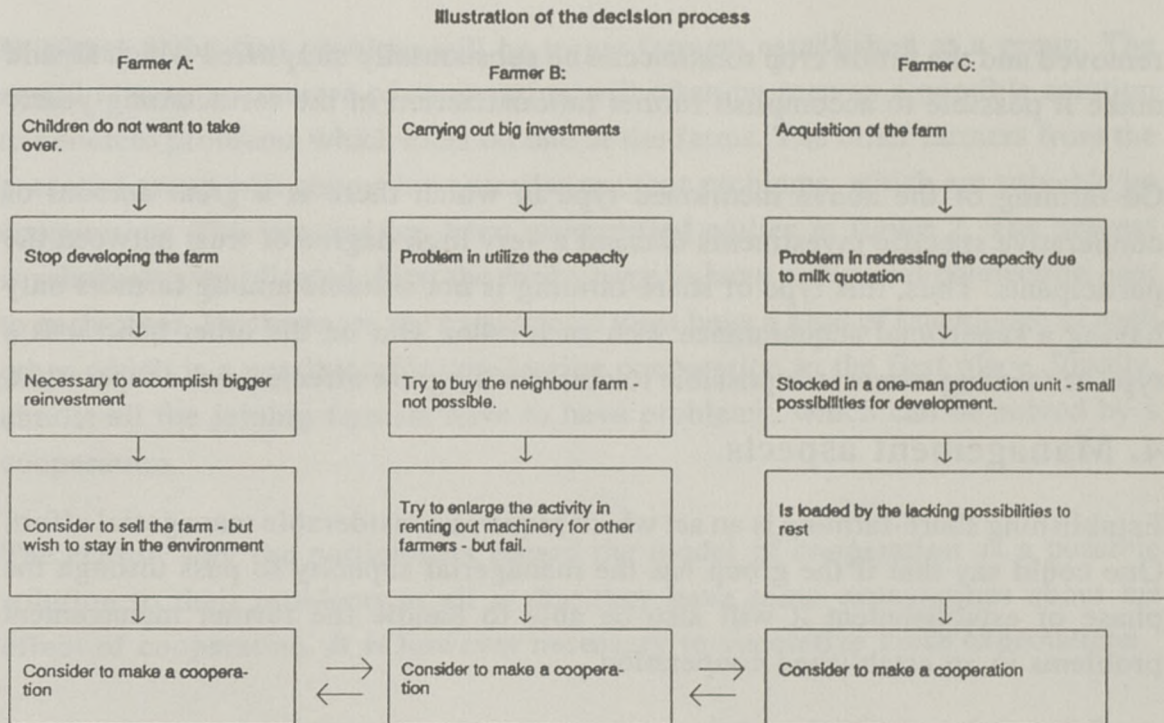


Figure 2: Illustrations of the decision process.

Because of the diversification problem, the two cash crop producers previously did not have an efficient use of hired labour. Co-farming overcomes many of these problems. The participant expect that one of the fulltime employed assistants could be sacked. In the long run the participants expect to reduce costs for maintenance, by making a greater part of repairs themselves - at the same time it is a job one of the farmers take a interest in. The gradual transition to use of bigger machinery was also expected to result in a reduction of reinvestment and use of work force.

The cooperation was established by using a model in which the co-farming was looked at as an independent economic unit. This unit is renting land and buildings and buying machinery, livestock, and stocks from the individual farmers. The two young farmers are offering their full labour for the co-farming unit.

Only 6 months after the creation, the participants in the co-farming have obtained the expected reduction in the use of hired labour. Simultaneously they have accomplish great changes in the cash crop production, dividing lines have been

removed and the future crop rotation can be substantially simplified which should make it possible to accomplish further rationalization in the forthcoming years.

Co-farming of the above mentioned type in which there is a great amount of cooperative specific investments demand a very high degree of trust between the participants. Thus, this type of share-farming is not suitable among farmers only having a superficial acquaintance with each other. But on the other hand it is a type of farming where it is possible to obtain very great effects from cooperation.

#### 4. Management aspects.

Establishing share-farming is an act which requires considerable managerial effort. One could say that if the group has the managerial capacity to pass through the phase of establishment it will also be able to handle the further management problems in an established cooperation.

The model (which has been) used for making decisions previous to establishing the co-farm is described in this section. A schematic outline of the model is shown in figure 3. It describes a process with possibility of feedback between the single phases, especially between phase no. 2 and 3. In practise it works as a trial-and-error method, where effort and payment of input factors are adjusted gradually, until all participants are content.

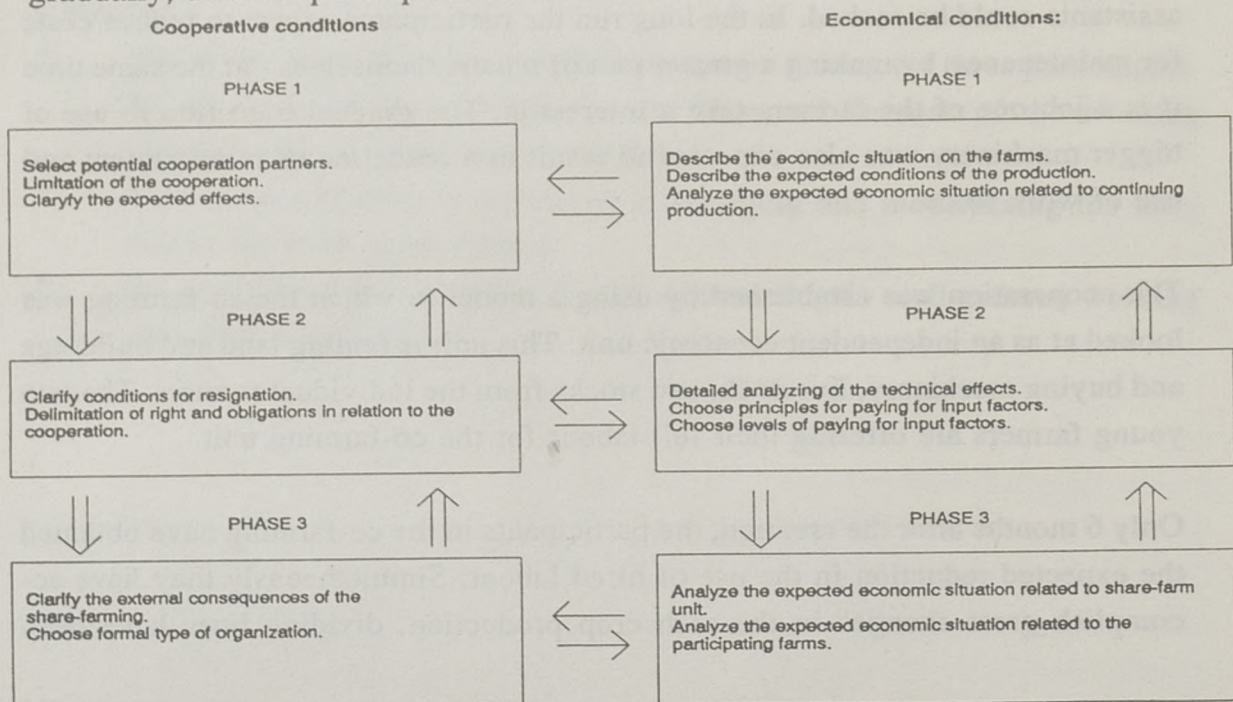


Figure 3: Schematic outline of the decision model.



In phase 1 the first problem will be to get farmers established as a group. The actual idea to a structure of cooperation will often be seen as a possible solution to concrete problems which exist on one of the farms. The other farmers from the potential group will almost have similar or other problems, which are solvable by cooperation. This process has been exemplified earlier in figure 2. The process is relatively complicated. First the farms have to have a physical connection near to each other. Furthermore the participants must have a kind of knowledge of each other which is a condition for considering cooperation in the first place. Finally, almost all the joining farmers have to have problems, which can be solved by a cooperation.

The reason why the participants regard the model of cooperation as a possible solution to their problems at all is that they have some expectations about the effect of cooperation. It is however necessary to concretize these expectations.

At the introductory phase is it also essential to define the limits of the co-farm. Do there for example exist some particular enterprises that the participants wish to keep out of the cooperation. Or do the participants wish to keep the ownership of some particular input factors to themselves?

In the initiating phase of the cooperation it is typical that farmers want to hire out almost all production factors to the co-farm unit, because it would make it easier to return to a traditional way of production if the cooperation proves unsuccessful. Gradually as the participants get acquainted with and trust in each other, the fear of other members of the group showing opportunistic behaviour fades away.

Economically the partners need a general view of the strategic position of their farm. The model suggests a description of the economic development during the last 4 to 5-year period and an overall financial forecast for a 5-year period.

In phase 2 substantial negotiations initiate between the participants. A general view is formed of the expected effects in production due to the cooperation. How big is the cake to be shared ?

In most co-farm cooperations the participants insert different input factors and to a different extent. The division of the economic returns between the partners is totally dependent on the principles of paying the input factors. For example to

what extent should the payment for labour and rent of land be fixed or dependent on the profitability of the share-farm unit ? It is important that the participants early in the process agree with the principles of paying the input factors. Empirically there ought to be paid much attention to a clarification of the principles of paying, before the decision of establishment is made. Also principles of dividing the real profit or deficit have to be made, before the final division-key is ready.

In phase 2 it has proved to be advisable, that the partners discuss the conditions of a resignation from co-farming. Time limits and principles concerning the value of assets and liabilities as well as a clarification of circumstances, which can lead to an expulsion of the cooperation must be laid down before establishment.

The right of each individual to make disposals and the delimitation of right and obligations in relation to the co-farm unit shall be clarified in phase 2. Finally it is necessary to clarify the extent of influence on management, that land, equipment, working capital and/or labour shall have. It is not obvious, that the right to vote in a company should be shared in proportion to the input of capital. On the contrary, it appears that the participants wish to accentuate the equality of the members by using cooperative principles as "one man, one vote".

Co-farming is a cooperation between two or more *independent* farmers. Therefore the survival capacity of a co-farming is determined by a common agreement of management on the general level. It must be paid attention by the elaboration of the voting principles. In practise it is handled by using a claim for consensus in several specific arrangements, typically in disposals of strategic consequence for the involved farmers.

The determination of the conditions of cooperation in a contract does not in itself have a high value. Partly because it is not possible in a contract to predict all kinds of development and partly because the participants can get round the conditions of the contract by ingenuity. But during the process of creating the contract the partners are forced to make up their mind about several "What-if" situations. The farmers are much more aware then when they establish a co-farm.

In phase 3 the external legal, fiscal, financial and support consequences of the potential cooperation involved in the basis of decisions are established. The effect

of different types of organization can also be involved in the analysis. Concerning the economic considerations it is important in the third phase to get a general view partly of the expected development of the co-farming's economy, partly of the expected effect for the economy of each-farm. The forecast by establishing co-farming is to be compared to the expectations of each farmer's economy.

The model used gives the single farmer some idea of the others economy and it enables the participants to discover how large an effect the others expect to get by cooperating. This openness about the economy as a token of confidence is probably a necessity to establish the more comprehensive co-farming.

Finally we will emphasize that the determined basis of cooperation in no way can be considered as static. And concerning the effect of a co-farming the valuation is often uncertain. The reason, among others, is that the level of registrations among farmers often is insufficient. Also it is difficult to predict all of the consequences of the used dividing key. Therefore the participants must already from the beginning be willing to make the necessary changes or adjustments of the conditions of cooperation.

## 5. Conclusion.

In the article the experiences so far from establishing co-farms in Danish agriculture are assembled. These experiences seems to indicate that considerable effects can be achieved by a change of the organization to a more integrated cooperation between independent farmers. Through cooperation, farmers who can not or will not follow the traditional strategy of expansion achieve several advantages that traditionally are reserved for larger farms. In certain areas, such as adaptability for new production conditions and ability for quick learning, it can even be discussed that small independent firms cooperating in a close network are superior to bigger firms.

The most essential disadvantage in integrated cooperations is clearly limitations in the personal ability to act due to increasing dependence of others and their decisions. To what extent it is possible to obtain the positive effects of a cooperation is dependent on the personal "chemistry" between the participants. One of the preliminary experiences from the project is that it is a good idea for persons not knowing each other beforehand to start with less comprehensive and obligated cooperations in which it is possible to leave the cooperation without

high costs. Such a cooperation could be purchase cooperation or joint investment in a single machine.

It is a general experience from the project that the right of property to production factors - and in particular to real estate - are looked upon as "sacred" and therefore have to be kept out of common ownership at any price. Moreover it seems to be of great importance to "leave the backdoor open", namely to get out of the relationship if cooperation is causing too many problems. Continued ownership to the real estate is considered to be such a "key". But there are clear indications that the longer a cooperative relationship exists and the more cooperative specific investments are carried out, the more difficult it would be for participants to leave the cooperation even if the property is still owned by individual farmers.

The more comprehensive and obligated cooperations represent an essential shift in strategy of the involved firms. Therefore, it is possible to use a lot of the experiences made in the initiating and implementing of strategic planning in agriculture. What the single farmer needs most of all is an overview. Does the farm have the ability to survive in the long run if the present strategy of the firm is continued, and in what way does the joining of a co-farming unit affect the total economy? For most people it has to be a requirement, that they are in no way worse off after cooperating.

Besides an economic overview it is - regarding the more comprehensive cooperations - essential that a long list of cooperating relations is clarified before the formal founding of the cooperation. Preliminary experience from the project points in the direction that elaboration of a proper set of contracts before the founding of a cooperative relationship results in a process in which a long list of questions that the participant has even thought about beforehand are put into discussion and clarified. The contract in itself should not ascribe too much importance as a means of holding together the cooperation. The co-farming unit is only going to exist as long as the individual participants on the general plan feel that they are treated in a fair manner and thereby obligated in relation to the cooperation.

In spite of the opening in the general legislation (The Law of Agriculture) for establishing share-farming, in practice great parts of the following legislation and the general administrative practice have not changed accordingly. These external

barriers in the form of legal limitations and fiscal, financial and support consequences have been a substantial hindrance for establishing comprehensive and formal co-farming in Denmark.

Finally it should be stressed that the founding of share-farms is a long-run process. Partly because of external barriers and partly because of the need for a gradual start making allowance of the trust between participants, it must be expected that a period of one to three years will elapse between the first contacts and the proper establishing of a formal cooperation.