COMPOSITION OF THE INTERVIEW PANEL

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COMPOSITION OF THE EXPERT PANEL

- Gunnar Mikkelsen, Danish Research Service for Plant and Soil Service
- Christer Nilsson, Swedish Agricultural University, Alnarp
- Jørgen Jakobsen, Danish Research Service for Plant and Soil Service
- Svend O. Ramborg, Association of Danish Fruit Growers
- Carl Åge Pedersen, Danish Agricultural Advisory Centre
- Niels Adler, Danish Society for the Conservation of Nature
- Søren Rosendahl, Botanical Institute, Copenhagen University
- Lone Albrektsen, consultant, Watershed Information Centre for protection of Groundwater within Agriculture
- Per Kristensen, managing director, Danish Agrochemical Association
- Henrik Høegh, farmer, Danish Farmers Union
- Steen Haubjerg, Head of Marketing, Irma A/S
- Henrik Nygård, Department of Cattle Husbandry
- Thorkild L. Pedersen, ecological farmer, Danish Family Farmers Association
- Jens Hauge Pedersen, Ministry of Agriculture
- Karin Andresen, Danish Consumer Council

1.WHAT IS INTEGRATED PRODUCTION?

The agricultural sector is under increasing popular and political pressure to make agricultural production more sustainable to animals and the environment. The question is whether Integrated Production is an appropriate tool for fulfilling this objective.

Integrated Production is a concept that involves increased consideration to be paid to the environment and ethics by for instance limiting the use of pesticides and commercial fertiliser and through better planned use of crop rotation and selection of strains. However, IP has never been unambiguously defined. We have decided to base our discussions on three IP

models.

Model 1

The producer will only take into consideration ethic and the environment to the extent that it will not harm his earnings.

This IP model is subject to a few fixed requirements. Examples of such requirements are spay journals, crop rotation plans, fertilising based on soil samples and a list of banned pesticides. But additional requirements are set up by the producer himself in light of the production conditions of the individual farm.

Model 2

The producer organises the production on the basis of ethical and environmental considerations which may result in increased costs. The increased cost may be set off by subsidies or higher prices.

As in relation to the first model, fixed minimum requirements are drawn up for this model, too, and the producer himself may also establish additional requirements.

Model 3

Fixed ethical and environmental standards are set up which IP farms must observe.

The IP requirements may be observed by individual production branches of a farm, by the whole of the farm and by subsequent links.

IP may be implemented in all steps of the production from soil to dinner table: for instance from the production of feed over breeding, butchering and processing of pork, all the way to the counter.

Discussion of the three models

Researchers and representatives of the agricultural sector agreed that an IP model for the Danish agricultural sector must be based on models 1 and 2 which are both designed in consideration of the production conditions reigning at the individual farms. Model 3, comprising fixed standards which must be observed by all farmers, gained support from the Danish Consumer Council and the Ministry of Agriculture.

The Ministry of Agriculture and the Consumer Council believed that it would be difficult to control models 1 and 2. In contrast, the agricultural sector and the researchers wanted to maintain the possibilities of individual application of varying volumes of pesticides and fertilisers when special circumstances work in favour thereof, for instance when a field is hit by an unpredicted pest attack.

We agree that it would be difficult to control IP models 1 and 2. It is in fact difficult to document the ethical and environmental merits of the products.

The majority of the expert panel agreed that the smallest unit, where IP can be implemented, is a farm, and that the objective in the long run is to implement IP throughout the food production chain. This objective contrasts with the way in which the producers of fruit and vegetables today apply the IP method. The fruit and vegetable sector does not call for reorganisation of the farm as such, but only of those parts of the production which the producer wishes to market as IP products.

We believe that the introduction of an IP product as a branded good must entail a reorganisation to integrated production throughout the production chain from sub-suppliers to shops. Lower levels of integration will probably lead to a devaluation of the concept and render it impossible for the user to recognise the environmental and ethical advantages gained. However, that should not prevent the introduction of IP in parts of the production chain or in sections of the farm. But it will prevent a producer from marketing the products as branded goods.

The interview panel also has the impression that factual knowledge and experience are missing on an integration which transcends the borders of the farm.

2.CONSEQUENCES OF IP

Environmental impacts

Tests results from Denmark and other countries provide indications of the consequences of IP on the environment. The impact of IP depends on the type of IP that has been implemented. The test results to which reference can be made are primarily based on land utilisation systems which are closely related to model 1. Where nothing else is mentioned, we will be referring to these types of land utilisation systems in the following.

In other land utilisation systems where further consideration is made to the environment to the detriment of economy, the harmful effects on the environment will presumably be lower, but probably not as low as in ecological farming.

Leaching of nitrogen

The reasons why IP results in leaching of smaller volumes of nitrogen than conventional farming are primarily:

1.Less fertiliser is applied

2.The nitrogen of farmyard manure and slurry may possible be better utilised

3.Increased incorporation of straw

4.Increased use of catch crops

5.Increased use of partial fertilisation (application of fertiliser several times during a season)

Several tests in Denmark and other countries have proven that IP implementation provides for diminished leaching of nitrogen. Especially catch crops and incorporation of straw seem to contribute to this positive result. In contrast, green fields of winter wheat do not substantially reduce the leaching.

We have gained the impression that conventional farming will probably not be able to meet the requirements to nitrogen leaching listed in the environmental action plan adopted by the Danish parliament, the Folketing. On the basis of expert opinions at the conference we estimate that a farm operated in accordance with the IP principles will be able to meet the requirements.

Consumption of pesticides

The target of the IP production is to apply lower levels of pesticides than those applied by conventional farms.

The following circumstances make it possible to do so:

1.The "self-cleaning" capabilities inherent in rotation of crops.

2.Increased use of resistant plant strains and strain mixtures.

3.Biological control is possibly used to a wider extent than in relation to conventional farms.

4.Mechanical control is used to a higher degree than in relation to conventional farms.

5.An interplay of the pesticides could arise, so that if e.g. fungicides are not applied, the parasitic fungi which attack the harmful insects may be preserved which will reduce the need of pesticides. In addition, reduced nitrogen leaching may possibly increase the resistance of plants to pest. This aspect needs better documentation.

In tests in several places in Denmark, IP has brought about a much lower use of pesticides than is found in relation to conventional farming. However, there could be individual seasons in which the consumption of pesticides is at par with that of conventional farming.

We have the impression, on the basis for instance of the papers at the conference, that conventional farming will probably not be able to fulfil the requirements to treatment frequency set up in the pesticide action programme adopted by the Folketing.

However, the general impression from the papers of the conference is that IP will make it possible to lower the treatment frequency considerably and that the IP producers will be able to meet the requirements.

Growth regulators

IP farming can and must do without growth regulators. This fact was repeated by several experts in their presentations. In Sweden the use of such substances is completely banned.

Water consumption

Generally, IP will not result in lowered consumption of water for field irrigation compared to conventional farming. However, computer programs can control field irrigation to lower the consumption.

Increased content of organic substances in the soil will result in improved water-retaining capacity. During the dry summer of 1994 this resulted in better water regimes in the IP test fields compared with the ordinary fields.

Sludge and compost

The expert panel voiced significant scepticism towards the application of sludge in IP even when the requirements to the maximum content of heavy metal in the sludge set up by the

Danish Environmental Protection Agency are observed. Thus, one of the experts expressed concern for the content of toxic organic substances stemming for instance from exotic fruits. However, we believe that it should be an important objective to complete the ecological circle, and that the quality of the sludge should consequently be sufficiently high to ensure its use on agricultural fields.

Energy consumption

The energy consumption may increase in IP systems, for instance because mechanical weed control is more energy-intensive than the production and application of pesticides. However, the energy consumption may also drop as a result of a lowered consumption of fertiliser.

Additional surveys are necessary, and so is the development of for instance new soil treatment methods and machinery which may reduce the energy consumption of mechanical weed control.

Ethics of domestic animals

IP implemented in accordance with model 1 will not automatically improve the conditions of domestic animals. Producers will not necessarily increase their earnings by improving the conditions of the animals. Thus, the IP idea must contain actual standards of ethics related to domestic animals.

For instance the panel believes that battery chickens and the use of antibiotics in feed are incompatible with the IP concept. Growth hormones should not be used in the agricultural sector at all.

Working environment

IP will bring the farmers production more in line with the requirements which the population is increasingly voiced to environmental-friendly production. This development may make the work of a farmer more satisfactory. But at the same time IP requires the producer to effect a higher degree of monitoring, control and documentation of the production. This entails a heavier work load to the individual producer.

IP involves a diminished consumption of pesticides, and thus the load stemming from the individual producer is lessened.

Financial situation

The financial impact on the producers of IP implementation depends on the selected IP model.

In relation to plant breeding in the agricultural sector, model 1 will often be the preferred model. This is the model in which financial aspects (profit contribution) are the decisive factors. In relation to tests on IP in other countries and in Denmark profit contributions have been achieved which correspond to the profit contribution of conventional farming.

In relation to vegetable and fruit growing, the sector claims that IP, compared to conventional growing, provides a smaller profit contribution (model 2), because:
- the risk of crop loss is higher
- the system involves costs for controlling.

The sector would prefer to solve the financial problems by imposing higher prices on IP products.

In relation to animal breeding, the producers either select model 2 (for instance through sale of free range eggs at a higher price) or model 3 where the authorities set up requirements for standards. At the conference we were given the impression that it will be difficult to go further than the sector is today in relation to for instance medicine consumption, unless the legislative framework is changed. Thus, changed regulations rather than financial incentives will enhance the ethical standing of animal production.

In the interview panel we have the impression that pig farming is today farther away from the IP concept than cattle production is.

The social impact of IP is difficult to gauge. But to the extent that IP reduces pollution of groundwater, the society will save on costs to cleaning and extension of the water supply.

3.MARKETING

IP products cannot be marketed as branded goods unless there are clear and precise production standards. This requires a control system which can document that the products fulfil the set standards (model 3). The majority of the expert panel agreed that such IP standards are not desirable. The representatives of the Consumer Council and the supermarket chain Irma clearly stated that they did not believe that it would be possible to market IP-branded goods without clear and controlled standards. The Consumer Council fears that IP goods without standards may confuse consumers and, at worst, reflect negatively on the sale of ecological goods.

On the basis of these considerations we conclude that production of IP-branded goods is not interesting seen from the point of view of the market. If IP is to find a place in our society, a reconstruction of conventional farming is the only way. This process will be instrumental in giving the agricultural sector an improved image and create major joint environmental gains.

4. WAYS AND MEANS

The panel recommends that convention farming be reconstructed to fulfil the requirements of a type of IP. Implementation of IP may be carried out by means of one or more of the following measures:

Consultancy

Education and training

Continuing education (farmers, consultants)

Information (farmers, consumers)

Test and demonstration farms

Supplier/producer agreements

Subsidies for
*integrated co-operation between several farms,
*control (if niche strategy),
*research and development

Adjustment of harmonisation requirements

Distribution of quotas to farms that fulfil IP requirements

Green taxes with or without repayment to the sector (pesticides, fertiliser)

Orders and regulations

Strategy

If IP products are to be marketed as niche products at higher prices, it means that model 3 must be applied to ensure that consumers will recognise and believe in the IP products. On

the background of the expert presentations we have, however, gained the clear impression that this strategy cannot be realised. This is in part because the agricultural sector does not show the necessary inclination to being controlled. We furthermore estimate that there is no room for a light-green environmental brand which is situated between conventional and ecological products.

As a minimum, farms must be reconstructed to fulfil model 1, and analyses must prove how far we can progress in direction of model 2.

We believe that IP as a starting point must be implemented as the minimum requirement to the conventional agricultural sector. The decisive question will be which tools should be used in this process. The basic foundations for this reorganisation must be data, information and dialogues. This will make it possible for the agricultural sector to avoid the implementation of tougher measures. It is necessary that the reorganisation process will be effected in the near future. A binding plan for this reorganisation should be presented by the agricultural sector before the end of 1995.

MAIN QUESTION 1
How is IP defined for farming? Which requirements should be set up for input, process course and output, and how does IP differ from both the best third of conventional farming and ecological farming in the following aspects?:

a)The nutrient cycle (e.g. consumption of fertiliser, application of sludge, catch crops)

b)Agricultural chemicals (e.g. positive list of pesticides, application criteria of pesticides, application of growth regulators and micro-nutrients)

c)Genetic engineering of organisms

d)Water consumption

e)Machinery (e.g. sizes and types)

f) Monitoring of pests

g)Consideration of nature in area use (small biotopes, uncultivated borders, hedgerows, etc.)

MAIN QUESTION 2

How is IP defined for production of fruit and vegetables? Which requirements should be set up for input, process course and output, and how does IP differ from both the best third of conventional farming and ecological farming in the following aspects?:

a)The nutrient cycle (e.g. consumption of fertiliser, application of sludge)

b)Agricultural chemicals (e.g. positive list of pesticides, application criteria of pesticides and micro-nutrients and spraying for cosmetic reasons (scurf))

c)Genetic engineering of organisms

d)Water consumption

e)Monitoring of pests

f)Requirements to cultivation media (mineral cotton, sterilisation of the cultivation medium)

g)Consideration of nature in area use (small biotopes, uncultivated borders, hedgerows, etc.)

MAIN QUESTION 3

How is IP defined for animal husbandry? Which requirements should be set up for input, process course and output, and how does IP differ from both the best third of conventional farming and ecological farming in the following aspects?:

a)Requirements of harmonisation (animals per area unit)

b)Feed (including imported feed)

c)Ethics of domestic animals

d)Growth hormones

e)Medicine consumption

f)Application of farmyard manure

MAIN QUESTION 4

To which extent is IP integrated?

a)Is integration limited to individual farms?

b)Is integration limited to specific parts of the production chain?

c)Is integration limited to national borders?

MAIN QUESTION 5

What is the environmental impact of IP?

a)How large will the environmental gain on nitrogen be at both farm level and national level in relation to introduction of IP?

b)Which consequences will the implementation of IP have on the consumption of pesticides in actual figures?

c)Which impact will the implementation of IP have on the fertiliser consumption in actual figures?

d)Will IP lower the consumption of energy and water?

e)Are IP goods more healthy than conventionally produced goods?

MAIN QUESTION 6

What are the financial consequences of IP?

a)Which financial consequences carries the introduction of IP to individual farms - presuming that the settlement prices of IP products are equal to those of conventional products?

b)How will the farm economy be influenced by a reduction of the consumption of pesticides/fertilisers?

c)Will IP for instance set up higher requirements to purchase of new machinery?

MAIN QUESTION 7

What are the spin-offs of IP?

a)Will IP increase the number of employees at individual farms?

b)Will IP entail changes to the degree of specialisation?

c)Will IP change the working environment at individual farms?

MAIN QUESTION 8

What are the objectives and goals for introduction of IP?

a)If the objective is to achieve more sustainable farming, why then is the implementation of IP an excellent strategy?

b)If the farmers objective is financial optimisation what is the reasons of individual farmers for implementing IP?

c)How large is the part of the Danish agricultural sector that may already today be designated as IP?

d)How long will it take for 50% of the Danish agricultural sector to convert to IP?

MAIN QUESTION 9

What are the marketing opportunities of IP products?

a)How large a percentage of IP products will the market absorb while conventional and ecological products are also available? Both the Danish market and the export markets.

b)How can we ensure that Danish IP products will manage the competition from the IP products of other countries?

c)Is the Danish agricultural sector ready for production and marketing of IP quality products?

d)Which arguments can be used in the marketing of IP products without slating conventional farming?

e)How do we ensure reliable documentation of the manufacturing process of IP products?

MAIN QUESTION 10

Which implementation strategies have been laid down for IP?

a)How should IP be introduced? How should the strategy between the two extremities of controlled or voluntary IP be formed, and how should the strategy between the two extremities of central or decentral initiatives be formed?

b)How will the above strategy influence the motivation of the farmer to introduce IP?

c)How will the transfer from conventional production to IP be financed? (individual farms, research, education and training, consultancy).

d)How will the ongoing control be financed?

e)How will a possible IP branding and marketing be financed?

The form below shows the experts who will be speaking in relation to the individual main and sub-questions:

Experts - Main and sub-questions - speaking time

"H" means that both main questions and sub-questions will be answered

"X" means that the main questions will be answered, but not the sub-questions unless they are marked with a letter.