

The farmer and the marginal land

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Results of a postal questionnaire survey in 1986 are given regarding: (1) the extent and character of the agricultural area that has been or is expected to be marginalized (taken out of rotation); (2) the farmers' attitudes to advice on landscape management; (3) the farmers' attitudes to various actions ordered by the authorities in connection with afforestation and regulation of the consumption of chemical fertilizer; and (4) the extent of public use and the nature of inconvenience caused by visitors to the farms. 2500 representative farmers received a questionnaire – 88.6 per cent replied.

Keywords:

Marginal land, land use, Denmark.

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The purpose of this article is to give an overview of the main results produced by a survey carried out at The Royal Veterinary and Agricultural University of Copenhagen, as one of the project surveys on marginal land and environmental interests which the Ministry of the Environment carried out in 1986.

The purpose of this particular marginal land project has been to pass on the farmers' own information and viewpoints on essential questions about the future of the farming land in an objective, clear, and at the same time varied way. More detailed results, discussion of methodology and sources of errors are to be found in the main report (Jensen & Koch, 1986) and a more detailed summary is available in Jensen & Koch (1987) – both in Danish only.

Method. The farmers' information has been collected using a questionnaire survey in the period July-August 1986.

Danish business units are subject to VAT registration; for the survey a gross random sample consisting of 2500 representative farmers, who received a postal questionnaire, has been drawn from this sampling frame – 88.6 % replied.

The survey has to a great extent used the methods (especially the "Experimental Method", cf. Koch & Jensen, 1988 – some parts in English) developed and tested in connection with the investigations of the forest and landscape preferences of the general population, carried out by Project "Forest and Folk" at The Danish Forest Exper-

	Last 5 years	Next 5 years
Plantations with Christmas trees	32%	19%
Afforestation	7%	18%
Plantations for wildlife/game	8%	19%

Permanent pasture for cattle	33%	22%
Other permanent pasture	7%	18%
Fallow	7%	1%
"Other" use	6%	2%

Table 1. Use of areas taken out of rotation the last 5 years, or intend

iment Station.

Results. To give an idea of the many varied results in the survey, this part is constructed as a number of replies to questions relevant to the subject of the survey.

Marginalization in the past 5 years

1. Which farmers have stopped cultivating agricultural areas in the past 5 years?

- 6.5 % of the farmers stated that they have stopped cultivating agricultural areas in the past 5 years. Especially the younger farmers and part-time farmers have taken areas out of rotation.

2. What is the extent of the agricultural areas where cultivation has ceased in the past 5 years?

- According to the farmers' own information, cultivation on 0.5 % of the agricultural areas has ceased in the period 1982-1986; which corresponds to a total of about 13,000 hectares on a national basis. It has mainly been areas in the northern part of Jutland that have been taken out of rotation.

3. How are the agricultural areas where cultivation has ceased in the past 5 years used today?

- The present utilization of the areas where cultivation has ceased is as follows: 47 % is planted (mainly Christmas trees), 40 % is used as permanent pasture (mainly for cattle), 7 % lies fallow, and 6 % has "other" utilization (cf. table 1).

4. Why have the farmers stopped cultivating some of the agricultural areas during the last 5 years?

- That the area is too wet make up 25 % of all the reasons given for taking out areas of rotation. That the area is too hilly, too dry or too small each accounts for approx. 15 %. Among "other" reasons (approx. 30 %), mainly economic reasons and nature and/or hunting interests are given.

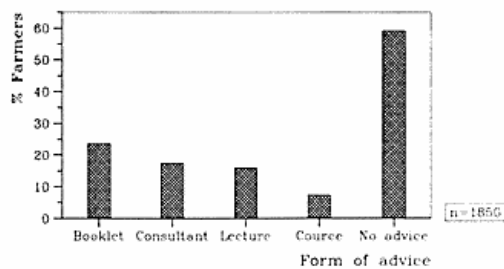


Fig. 1. Distribution of farmers by landscape management and conservation advice preferences for the next 5 years. Note: The option was given of choosing more than one form of advice. (n = number of respondents).

Fig. 1. Fordeling af landbrugere efter foretrukken vejledning vedr. pasning og bevaring af arealer inden for de næste 5 år. Bemærk, det var tilladt at vælge mere end én form for vejledning. (n = antal svarpersoner).

Marginalization in the next 5 years

5. Which farmers expect to stop cultivating agricultural areas in the next 5 years?

- 6.6 % of the farmers stated that they expect to stop cultivating agricultural areas in the next 5 years. Especially the younger farmers and part-time farmers intend to take areas out of rotation. Otherwise, it is especially farmers, who have already taken areas out of rotation in the last 5 years who also expect to take further areas out in the next 5 years.

6. To what extent will the cultivation of agricultural areas cease in the next 5 years?

- On a national basis the farmers expect that cultivation on 0.8 % of the agricultural areas will cease in the period 1986-90; this corresponds to a total of about 21,000 hectares. Thus Danish farmers expect more marginalization in the next few years than in the past 5 years. Of course, reality may be different; this will depend on future prices, legislation etc. It is mainly areas in the northern and central part of Jutland that can be expected to be taken out of rotation.

7. What expectations have the farmers as regards the use of the agricultural areas where cultivation is expected to cease in the next 5 years?

- The farmers' utilization of the areas where cultivation is expected to cease is expected to be almost equally divided between the following five uses: (1) permanent pasture for cattle; (2) permanent pasture for sheep and other domestic animals; (3) plantations with Christmas trees; (4) plantations for wildlife and/or game; and (5) afforestation (cf. table 1).

8. Why will the farmers stop cultivating some of the agricultural areas in the next 5 years?

- Three reasons – that the area is too wet, dry or hilly - each accounts for approx. 20 % of the reasons farmers give for

expecting to take areas out of rotation. Among "other" reasons (21 %), mainly economic reasons and nature and/or hunting interests are given. The last group – just over 15 % - is distributed over the reasons that the area is too small (11 %); is situated too far away (4 %); or is expected to be protected by the Nature Preservation Act.

The farmers' attitudes to advice on landscape management and conservation

9. What are the farmers' attitudes to advice on landscape management and conservation?

- 41 % of all farmers would like advice on landscape management and conservation over the next 5 years. Especially the younger farmers, farmers on larger agricultural holdings, farmers who are members of The Danish Hunters' Association and/or The Danish Society for Nature Preservation showed interest in advice on this topic.

Booklets are the most popular form of advice, approx. 25 % of the farmers preferred these. At the opposite extreme, the least preferred form of advice is refresher courses (cf. fig. 1).

The farmers' attitudes to various actions ordered by the authorities

Farmers' attitudes to 80 different actions were tested. To limit the number of topics to be ranked by each respondent, and at the same time to be able to examine the farmers' attitudes to (preferences for) a large number of topics, the following response format was used:

Out of a total of 80 different verbal stimuli concerning different actions, each respondent had to rank 7 randomly sampled actions according to instructions on the postal questionnaire and on the envelope used for the cards on which the verbal stimuli were printed. The ranking criterion was: "If, in the course of the next five years, official measures were to be initiated in connection with certain agricultural areas, which would you find most or least acceptable?"

The response format used entails that each possible action has been assessed approx. 160 times by the selected farmers. It should be noted that on the basis of the results it is not possible to conclude that the farmers would like certain proposed actions implemented. The results only show which proposals are acceptable in preference to others among the total of 80 proposals for actions tested. How the attitudes (preferences) vary among various segments of farmers was tested, but is not reported in this article.

10. Which actions in relation to afforestation do the farmers find most or least acceptable?

- Among 18 actions related to afforestation tested, the farmers find the following most acceptable: "Option of a once-for-all subsidy of Dkr.10,000 per ha on afforestation". This option was ranked second highest among all

No.	Measure	Rank ^{a)}	Mean Score ^{b)}
77	Option of a once-for-all subsidy of DKK 10,000 per ha on afforestation.....	2	5.19
41	Option of receiving, from the farmer's 55th year and for a max. of 12 years, an index-regulated early retirement pension of DKK 90,000 a year if the farmer allows the state to plant the property at its own expense with forest subject to forest conservation obligations.....	9	4.88
34	Option of a once-for-all subsidy of DKK 10,000 per ha on afforestation subject to forest conservation obligations.....	16	4.53
40	Option of receiving, from the farmer's 55th year and for a max. of 12 years, an index-regulated early retirement pension of DKK 70,000 a year if the farmer allows the state to plant the property at its own expense with forest subject to forest conservation obligations.....	18	4.43
18	Option of an annual subsidy of DKK 1000 per ha (index-regulated) on afforestation subject to forest conservation obligations.....	20	4.37
36	Option of having areas planted with forest free of charge against observation of forest conservation obligations.....	26	4.28
43	Option of selling off areas at market price to The National Forest Service for afforestation.....	29	4.21
50	Option, through land distribution, with costs paid by the state, of combining areas for afforestation.....	30	4.18
33	Option of a once-for-all subsidy of DKK 5000 per ha on afforestation subject to forest conservation obligations.....	32	4.18
44	Option of selling off areas at market price to the local Forest Owners Cooperativ for afforestation.....	34	4.11
54	Option, through land distribution, of combining areas for afforestation.....	37	4.09
45	Option of selling off areas at market price to The Danish Land Development Service for afforestation.....	38	4.09
35	Option of receiving free trees for afforestation subject to forest conservation obligations.....	42	4.06
25	Option of exemption from land rates on afforestation subject to forest conservation obligations.....	50	3.90
46	Option of selling off land areas at market price to the local county for afforestation.....	53	3.83
32	Option of a once-for-all subsidy of DKK 2000 per ha on afforestation subject to forest conservation obligations.....	56	3.74
01	Option of an annual subsidy of DKK 500 per ha (index-regulated) on afforestation subject to forest conservation obligations.....	57	3.73
11	Option of an annual subsidy of DKK 200 per ha (index-regulated) on afforestation subject to forest conservation obligations.....	68	3.34

Note: a): Number from a ranking of all 80 measures by the farmers' mean assessment from 1 (highest) to 80 (lowest).
b): Mean score awarded by the farmers (7 points have been assigned to a farmer's top preference measure, 6 points to the second choice, etc., and 1 point to the measure the farmer found least acceptable).

the 80 proposals tested. But if the proposal is altered to include an obligation to preserve the forest, the farmers' interest in the option decreases considerable (to rank no. 16).

The proposals in relation to afforestation which the farmers find least acceptable are annual subsidies of Dkr. 200 and 500 per hectare and a once-for-all subsidy of Dkr. 2000 per hectare – in all three cases an obligation to preserve the forest is included. In general the farmers are more interested in once-for-all subsidies than in annual subsidies in connection with afforestation (cf. table 2).

11. Which actions to regulate the consumption of chemical fertilizer do the farmers find most or least acceptable?

- The most acceptable proposal among the 14 under investigation is: "Option of an annual subsidy of Dkr. 1000 per hectare (index-regulated) on transition to a type of agricultural production using 20 % less chemical fertilizer than today". This proposal ranked as no. 1 of all the 80 proposals tested. The same proposal, altered to include a

No.	Measure	Rank ^{a)}	Mean Score ^{b)}
21	Option of an annual subsidy of DKK 1000 per ha (index-regulated) on transition to a type of agricultural production using 20% less chemical fertilizer than today.....	1	5.28
28	Option of exemption from land rates on transition to a type of agricultural production using 20% less chemical fertilizer than today.....	4	4.95
22	Option of an annual subsidy of DKK 1000 per ha (index-regulated) on transition to a type of agricultural production using 40% less chemical fertilizer than today.....	5	4.94
07	Option of an annual subsidy of DKK 500 per ha (index-regulated) on transition to a type of agricultural production using 20% less chemical fertilizer than today.....	11	4.75
14	Option of an annual subsidy of DKK 200 per ha (index-regulated) on transition to a type of agricultural production using 20% less chemical fertilizer than today.....	24	4.30
19	Option of an annual subsidy of DKK 1000 per ha (index-regulated) on transition to a type of agricultural production not using chemical fertilizer.....	31	4.18
08	Option of an annual subsidy of DKK 500 per ha (index-regulated) on transition to a type of agricultural production using 40% less chemical fertilizer than today.....	41	4.06
29	Option of exemption of from land rates on transition to a type of agricultural production using 40% less chemical fertilizer than today.....	48	3.92
15	Option of an annual subsidy of DKK 200 per ha (index-regulated) on transition to a type of agricultural production using 40% less chemical fertilizer than today.....	60	3.70
04	Option of an annual subsidy of DKK 500 per ha (index-regulated) on transition to a type of agricultural production not using chemical fertilizer.....	65	3.48
26	Option of exemption from land rates on transition to a type of agricultural production not using chemical fertilizer.....	70	3.30
12	Option of an annual subsidy of DKK 200 per ha (index-regulated) on transition to a type of agricultural production not using chemical fertilizer.....	75	3.05
79	Imposition of a duty of 20 øre per kg nitrogenous content in chemical fertilizer, where the resultant revenues are used to subsidize environmental improvements in the agriculture.....	79	2.61
80	Imposition of a duty of 40 øre per kg nitrogenous content in chemical fertilizer, where the resultant revenues are used to subsidize environmental improvements in the agriculture.....	80	2.39

Note: a): b): See table 2.

demand to decrease the use of fertilizer by 40 % instead of 20 % was assessed almost at the same level.

In contrast, the farmers found the two proposals imposing duties of respectively 20 or 40 øre per kg. nitrogenous content in chemical fertilizer absolutely least acceptable of all the 80 proposals (cf. table 3).

The farmers' attitudes to several other topics were investigated, e.g. actions in connection with: (1) regulation of the use of pesticides; (2) protective zones near watercourses; (3) the conservation and establishment of different biotopes; and (4) cooperation with various institutions. These topics are not discussed here, but the results can be found in the main report (Jensen & Koch, 1986).

Public use of the "open" countryside – extent and inconveniences

12. How extensive is the public use of the agricultural landscape?

- Fairly wide variation in the intensity of public use of farms was ascertained (cf. fig. 2). The result can be summarized as follows. On half of the farms, public use had been experienced during the previous month; while public use had been experienced more than one month before on the other half of the farms. (It should be noted that the farmers were requested to exclude the use of public roads

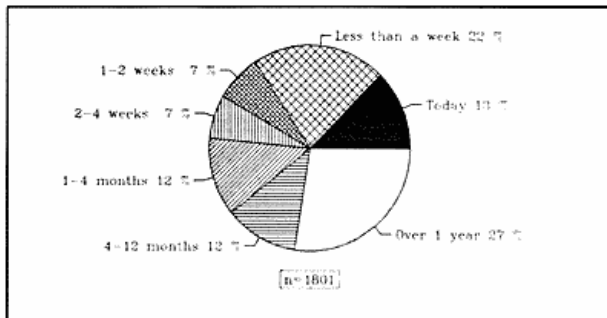


Fig. 2. Distribution of farmers by time passed since outsiders were last seen on their farms. Note: Farmers were asked to disregard the use of public roads and footpaths.

Fig. 2. Fordeling af landbrugere efter hvornår de sidst har set fremmede på deres ejendom. Benyttelse af sti og offentlig vej skulle ikke medtages.

and paths, and that the questioning was done only during the summer months of July-August).

13. Had the farmers experienced any inconvenience due to public use of the farms?

- 19 % of the farmers stated that during the last 5 years, they had incurred costs or suffered nuisances due to the public use of their farms. The most frequent nuisance mentioned was damage to crops, which accounted for 18 % of all the stated damages. 8 % of the farmers provided on request an estimate of the losses due to damage – 5 % specified damage of more than DKr. 500 during the previous five-year period (cf. fig. 3).

The farmers' attitudes to various forms of access to the countryside that might be introduced in the future were also tested by the same method as described earlier in connection with various actions ordered by the authorities.

The main results of this investigation are: (1) the farmers prefer that the public should be required to ask permission before entering the farm (the present legal situation) to general accessibility with compensation paid by the state; (2) walking ranks higher in preference than cycling and riding; and (3) access to field lanes and along watercourses ranks higher in the farmers' preferences than walking along hedgerows or on roads in small forests.

Resumé

Formålet med denne undersøgelse er at videregive landbrugernes egne oplysninger og synspunkter på væsentlige spørgsmål om fremtiden for landbrugets jorder. Undersøgelsen er udført på Landbohøjskolen som en af Miljøministeriets projektundersøgelser i 1986 vedrørende marginaljorder og miljøinteresser.

Fra Danmarks Statistiks register over momsregistrerede landbrug, blev der tilfældigt udtrukket en repræsentativ stikprøve på 2500 landbrugere; disse fik i perioden juli-august 1986 tilsendt et spørgeskema – 88,6 % svarede.

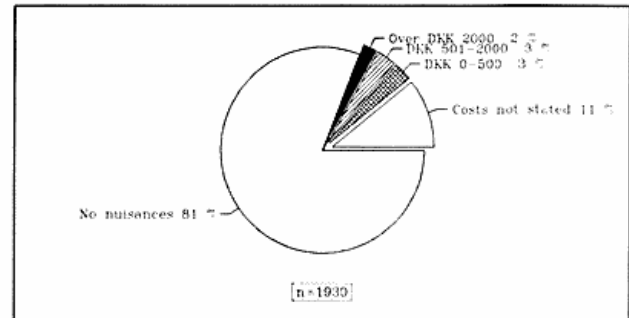


Fig. 3. Percentage of farmers who had costs or suffered nuisances as a result of outsiders' presence on their farms, distributed by the farmers' own statements of the costs incurred.

Fig. 3. Procentdel landbrugere som har oplevet gener eller haft ekstraomkostninger som følge af fremmedes færden på deres ejendom. Fordeling efter landbrugernes egne opgørelser af udgifter forårsaget af fremmede.

Af undersøgelsen fremgår det, at landbrugerne forventer at tage relativt få arealer ud af omdriften inden 1992 – 0,8 % af det totale areal i omdrift. Virkeligheden kan naturligvis blive en anden, idet den vil afhænge af de fremtidige priser, lovgivning mv. På de opgivne omdriftsarealer foregår især en tilplantning med skov-/juletræer eller afgræsning. Landbrugerne forventer et skift fra – i de seneste 5 år – at have tilplantet relativt store arealer med juletræer til i stedet at foretage tilplantning med henblik på skov i de kommende 5 år.

Knap halvdelen af landbrugerne udtrykte interesse for vejledning i bevaring og pasning af arealer, der er udgæet af omdriften. Brochurer om emnet foretrakkes af de fleste, mens en egentlig kursusvirksomhed er mindre populær.

Et andet spørgsmål søgte at belyse, hvordan landbrugerne vurderer 80 forskellige – eventuelle – foranstaltninger i forbindelse med marginale jorder. Det kan bl.a. konstateres, at landbrugerne er relativt positive over for en reduktion i forbruget af kunstgødning og over for tilplantning med skov; men i begge tilfælde forudsætter det tilskud fra det offentlige. Derimod vurderes eksempelvis afgifter på kvælstof i kunstgødning relativt negativt.

I undersøgelsen indgår også landbrugernes holdning til befolkningens brug af landbrugsarealer som friluftsområder. De fleste landbrugere er vant til at se fremmede på bedriften – inden for den sidste måned havde halvdelen af de adspurgte landbrugere set fremmede, der færdedes på deres bedrift; (det skal her bemærkes at udspørgningen som nævnt foregik i sommermånederne juli-august, resultatet kan således ikke tages som gældende for hele året).

De færreste har imidlertid oplevet gener ved publikums færden – 81 % har slet ikke oplevet gener inden for de sidste 5 år, og kun 5 % giver oplysninger om samlede skader på over 500 kr. i løbet af 5-års perioden. Hyppigste skader var på markafgrøder.

Litteratur

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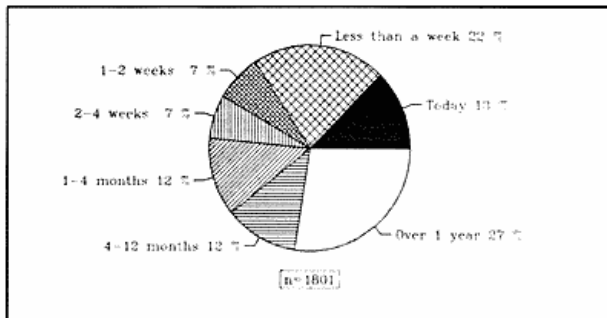


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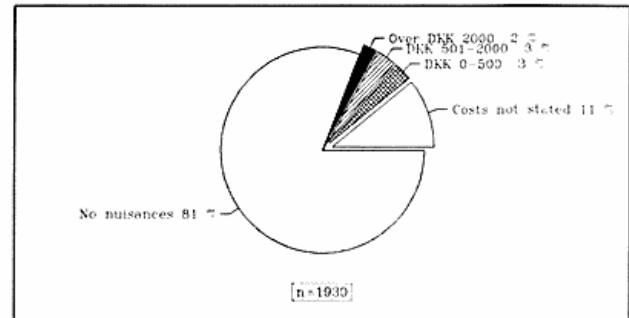


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