Markov decision programming techniques applied to the animal replacement problem

Anvendelse af teknikker for Markov beslutnings-programmering til løsning af udskiftningsproblemet vedrørende husdyr

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Dina KVL
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Copenhagen 1993

Denne afhandling er af Den Kgl. Veterinær- og Landbohøjskoles husdyrbrugs- og veterinærvidenskabelige kollegium antaget til offentligt at forsvares for den jordbrugsvidenskabelig doktorgrad.

København, den 4. maj 1993

Poul Hyttel
Formand for det husdyrbrugs- og veterinærvidenskabelige kollegium

Til min familie

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Dissertation 1993
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ISBN 87 7026 332 9

Afhandlingen er trykt med støtte fra Statens Jordbrugs- og Veterinærvidenskabelige Forskningsråd.

Forside: Bo Bendixen plakat, 3 køer, for Danish Turnkey Dairies Ltd., 1982, format 62 x 91 cm.
Kunstneren og APV DTD takkes for velvillig at have stillet motivet til rådighed.
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Published by Jordbrugsforlaget, Mariendalsvej 27, 2. DK-2000 Frederiksberg.
Printed in Denmark by Sangill, Holme Olstrup. Pre-press by Repro-Sats Nord, Skagen.

Preface

The research behind this thesis was carried out at the Royal Veterinary and Agricultural University partly while I was the holder of a senior research fellowship at the Department of Mathematics from 1985 to 1986 and partly during my employment at the Department of Animal Science and Animal Health, where I was assistant professor from 1986 to 1990 and now hold a position as associate professor. I am very grateful to the staff of both departments for excellent working conditions.

Professor Mats Rudemo, D. techn. Sc., and Professor Mogens Flensted-Jensen, D. Sc., have been very good advisers as concerns the difficult job of writing scientific papers and their scientific support has been a continuous encouragement. I am grateful to the head of my present department, Associate Professor Poul Henning Petersen, Ph. D. (agric.), for his awareness of the importance of management and informatics in animal science. I am indebted to my colleagues, Associate Professor Poul Jensen, M. Sc., and Jens Noesgaard Jørgensen, Ph. D. (agric.), for mutual exchange of computer power and for many animating discussions concerning computers and statistical methods. Associate Professor Sven Bresson, Ph. D. (agric.), and Professor A. Neiman-Sørensen, D.V.M., have indirectly been a great help through their concise ideas concerning the methods and nature of research .

Also my former place of work, the National Institute of Animal Science, Section of "Multidisciplinary Studies in Cattle Production Systems" (*Helårsforsøg med Kvæg*), has been a continuous inspiration. The enthusiasm and scientific competence, which over a short period has raised the section from the "demonstration farm" level to a leading position in Europe concerning the research in cattle production systems and management, has been an ever lasting example. In particular, thanks are due to the head of the section, Vagn Østergaard, D. Sc. (agric.), Iver Thysen, Ph. D. (agric.), Jan Tind Sørensen, Ph. D. (agric.), and Jens Peter Hansen, M. Sc. (agric.) for many inspiring discussions and for comments on earlier versions of several of the chapters of this thesis. Erik Jørgensen, Ph. D. (agric.) at the Department of Research in Pigs and Horses of the same institute has also supplied inspiring suggestions.

As concerns the choice of subject of the thesis, I am indebted to Professor Harald B. Giæver, Agricultural University of Norway, who must suffer the indignity of being referred to as "Giaever" in this and other studies. His thesis on "Optimal dairy cow replacement policies" from Berkeley arouse my interest in the animal replacement problem already when I was a student. Even though the thesis was published already in 1966, it remains even today an important reference, and several more recent studies have not even reached its level.

The works of Dr. Yaron Ben-Ari from Israel have been the direct inspiration of one of the chapters of this thesis, and indirectly they have inspired several chapters. Also the numerous works of the Department of Farm Management, Wageningen Agricultural University, have been of great value to my research. In particular I am indebted to the works of Professor, dr. ir. Aalt A. Dijkhuizen and his staff.

For typing of some of the manuscripts I thank Mrs. Ruth Crifling, Mrs. Kirsten Astrup, Mrs. Britta Christensen, and for giving advice concerning the English language I thank Mrs. Lone Høst, Mrs. Alice Jensen and Mr. Bent Grønlund.

Financial support was granted directly by the Danish Agricultural and Veterinary Research Council from 1986 to 1988, and indirectly via Dina (*Danish Informatics Network in the Agricultural Sciences*) in 1991.

Copenhagen, September 1992
Anders Ringgaard Kristensen

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