

**THE EFFICIENCY OF BEEF CATTLE PRODUCTION IN THE
TARGET AREA OF CONCENTRATION, JOHOR**

By

TAPSIR SERIN

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
Malaysia, in Fulfilment of the Requirements for the
Degree of Master of Science**

April 2004

Especially dedicated to my dearly beloved:

Wife,

Hafizah Ahmad

Children,

Muhammad Aqmal,

Farah Nadia, &

Muhammad Akif

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in partial fulfilment of the requirement for the degree of Master of Science

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Chairman: Professor Mad Nasir Shamsudin, Ph.D.

Faculty: Agriculture

The production of beef in Malaysia is inadequate to meet the demand, due to the rapid increase in consumption and population. The Target Area Concentration (TAC) project is expected to be a major contributor to boost beef cattle production. This study examines the efficiency of resources used in the beef cattle production in the TAC in Johor, Malaysia. It addresses the issues on productivity and technical efficiency of beef cattle operations and their relationship with management inventory, farm performances, animal husbandry practices, as well as socio economic and demographic factors.

The translog and Cobb-Douglas stochastic frontier production functions were used to examine the issues of technical efficiency in the TAC project. The frontier regression model was estimated using the maximum likelihood estimation (MLE) technique. The translog stochastic frontier model was found to be suitable in representing the sample data and provide better estimates than the Cobb-Douglas model.

The results indicated that the beef operation in the TAC has an increasing return to scale. The average computed technical efficiency for individual farm units is 0.6829. The majority of the farms (51%) were between 40% to 80% of technical efficiency. The total loss in production due to inefficiency was estimated about 3,094 heads of beef cattle in Animal Unit (AU) per year. The study also found that there was a significant different in average technical efficiency by TAC location. However, the technical efficiency was not significantly different by farm types, ownership, and sizes.

The findings of this study suggest that there is room for expansion, through the adoption of best practice technology and optimal resource allocation. The farm's technical efficiency could be improved by better planning and controlling skills by the farmers/managers, longer experience, proper training, more frequent of advisory services by extension agents, higher calving rate, involvement by DVS in breeding and health management services and by using cross breed cattle.

Abstrak tesis ini dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi sebahagian syarat keperluan untuk ijazah Master Sains

**KECEKAPAN PENGELUARAN LEMBU PEDAGING DI KAWASAN
TUMPUAN SASARAN DI NEGERI JOHOR**

Oleh

TAPSIR SERIN

April 2004

Pengerusi: Professor Mad Nasir Shamsudin, Ph.D.

Fakulti: Pertanian

Pengeluaran lembu pedaging di Malaysia tidak dapat memenuhi keperluan permintaan semasa kerana peningkatan penggunaan dan populasi penduduk. Projek di Kawasan Tumpuan Sasaran (KTS) diharapkan dapat menyumbang untuk mempertingkatkan lagi pengeluaran lembu pedaging. Penyelidikan ini mengkaji kecekapan dalam penggunaan sumber-sumber untuk pengeluaran lembu pedaging di Kawasan Tumpuan Sasaran (KTS) di negeri Johor, Malaysia. Ia mengkaji isu-isu mengenai produktiviti dan kecekapan teknikal dalam pengeluaran lembu pedaging dan perkaitannya dengan inventori pengurusan, prestasi ladang, amalan penternakan serta faktor-faktor sosio ekonomi dan demografi.

Fungsi pengeluaran sempadan stochastic translog dan Cobb-Douglas digunakan untuk mengkaji isu-isu mengenai kecekapan teknikal di KTS di negeri Johor. Model regresi

sempadan dianggarkan menggunakan teknik “maximum likelihood estimation” (MLE). Model stochastic translog didapati sesuai untuk mewakili data dalam sampel kajian dan memberikan penganggaran yang lebih baik dibandingkan dengan model Cobb-Douglas.

Penemuan kajian menunjukkan operasi pengeluaran lembu pedaging sedang berada pada tahap pulangan mengikut skel yang bertambah. Kecekapan teknikal yang dikira untuk setiap unit ladang menunjukkan nilai purata 0.6829. Majoriti ladang (51%) mencapai kecekapan teknikal diantara 40% sehingga 80%. Jumlah kerugian dianggarkan kerana ketidakcekapan adalah sebanyak 3,094 ekor lembu pedaging dalam kiraan Unit Ternakan (AU) setahun. Kajian ini juga menunjukkan ada perbezaan dalam purata kecekapan teknikal mengikut lokasi KTS. Bagaimanapun, tiada perbezaan kecekapan teknikal yang signifikan berasaskan jenis ladang, pemilikan ladang dan saiz ladang.

Penemuan kajian ini mencadangkan masih ujud ruang untuk peningkatan pengeluaran dengan menggunakan teknologi terbaik yang diamalkan dan pengagihan sumber secara optima. Kecekapan teknikal ladang boleh diperbaiki dengan kemahiran perancangan dan kawalan yang lebih baik oleh penternak/pengurus ladang, pengalaman yang lebih lama, latihan yang mencukupi, khidmat nasihat yang lebih kerap dari agen pengembangan, kadar kelahiran anak lembu yang lebih tinggi, penglibatan dari Jabatan Perkhidmatan Haiwan dalam perkhidmatan pengurusan kesihatan dan pembiakan serta penggunaan baka lembu kacukan.

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I certify that a Examination Committee met on 21st April 2004 to conduct the final examination of Tapsir Serin on his Master of Science thesis entitled “The Efficiency of Beef Cattle Production in The Target Area of Concentration, Johore” in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

MOHD. MANSOR ISMAIL, Ph.D.

Associate Professor
Faculty of Agriculture
Universiti Putra Malaysia.
(Chairman)

ROSLI SALEH, Ph.D.

Lecturer
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

NORSIDA MAN, Ph.D.

Lecturer
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

MOHD. FAUZI MOHD. JANI, Ph.D.

Associate Professor
Faculty of Economics
Universiti Kebangsaan Malaysia
(Independent Examiner)

SHAMSER MOHAMAD RAMADILI, Ph.D.

Professor / Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date :

This thesis submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of Supervisory Committee are as follows:

MAD NASIR SHAMSUDIN, Ph.D.

Professor
Faculty of Agriculture
Universiti Putra Malaysia
(Chairman)

ZAINAL ABIDIN MOHAMED, Ph.D.

Associate Professor
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

ALIAS RADAM, MBA

Lecturer
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

AINI IDERIS, Ph.D.

Professor / Dean
School of Graduate Studies
Universiti Putra Malaysia

Date :

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

TAPSIR BINSERIN

Date : 28th May 2004

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