TABLE OF CONTENTS

PART I

BACKGROUND

PART II

PRACTICAL PLANNING

PART III

MACHINERY COST

PART VI

APPENDIXES

LIST OF TABLES

LIST OF FIGURES

PREFACE

In my capacity as consulting agricultural economist, I have confronted many farmers with the high levels of their machinery repairs. While looking down the barrel of the gun, they responded by asking me what they should do to reduce this expenditure. As we argued about it, I started to realize that reducing machinery repairs is not as simple as cutting back on fertilizer, using less laborers or buying pest resistant seed instead of using pesticides. I finally had to give in to the farmers and admit that there is nothing they can do about the high machinery repair cost, for the moment that was.

Defeated but not conquered, I started doing some research on machinery cost. It was fine for the farmers to beat me in the first set but I new all along that they are going to loose the match against their tractors if we don't find a solution. It is simply not sustainable to accept the high and ever increasing cost of machinery repairs as a given fact. There must be an economical way to manage machinery. So, after several years of research, reading, calculations and putting it all on paper, you are hopefully holding the answer to this problem in your hands right now.

Machinery cost is very complex. It is firstly a decision involving the timeliness of operations and secondly a decision with an outcome that should last for a long duration. There is ownership cost as well as operational cost involved. The smaller the machinery set the harder it is going to work, causing repair cost to increase. The bigger the machinery set, the higher the ownership cost will be, resulting in more interest on borrowed funds to be paid.

This book then is about:

- *Introducing the reader to the different cost and management components of agricultural machinery;*
- *Discussing the practical planning of machinery operations in order to find the optimal machinery set;*
- *Determining the optimal size of the machinery to complete the operations in an optimal time frame;*
- *Describing the relationship between machinery use and machinery cost;*
- *Calculating the eventual point in time for replacing used and obsolete machinery and discussing how to finance this replacements;*
- *Suggesting practices that will increase the effective use of tractors.*

Machinery management must contribute to total management in a cost effective manner. There are a number of strategies to follow that will enable the farmer to achieve maximum life from his machinery. A combination of practices can have a large impact on costs, improve machine reliability for many years to come and finally, increase profit margins.

I would like to thank the many agricultural economists and agricultural engineers around the globe who put a lot of effort in compiling research papers and extension documents over many years about the topic of machinery management. I have used a lot of their information in this book and although I gave the proper recognition in the references, I cannot give enough acknowledgement to their hard work. Without your work and the availability of your documents, it wouldn't be possible to write this book.

I hope the effort that was put into this book will help the reader to understand the complexity of agricultural machinery management better. May this knowledge help you to manage your machinery the economic way.

Philip Theunissen
Bethlehem
South Africa
August 2002