

DECLARATTION

I declare that the mini-dissertation hereby submitted to the University of Limpopo, for degree of Master of Science in Agriculture (Crop Science) has not previously been submitted by me for a degree at this or any other university; that it is my work in design and in execution, and that all material contained herein has been duly acknowledged.

R. MATHOBO

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DEDICATION

To my husband and my two kids Dembe and Wavhudi.

TABLE OF CONTENTS

Title	Page
Declaration	ii
Acknowledgements	iii
Dedication	iv
Table of contents	v
List of tables	vii
List of figures	viii
List of appendices	ix
Abstract	xii
CHAPTER 1:	1
1.General Introduction	1
CHAPTER 2:	5
2. Literature Review	5
2.1.1 Intercropping	5
2.1.2 Crop rotation	6
2.1.3 Weeding/sanitation	7
2.1.4 Genetic resistance	7
2.1.5 Soil fertility	9
2.1.6 Mulches	10
2.1.7 Chemical control	10
2.1.8 Biological control	11
2.1.9 Integrated striga management	12
CHAPTER 3	13
3.Effect of weed control method on striga numbers, maize yield and yield components	13
3.1 Introduction	13
3.2 Materials and methods	14
3.2.1 Study area	14
3.2.2 Experimental design and treatments	14

3.2.3 Trial management	15
3.2.4 Data collection	15
3.2.5 Data analysis	16
3.3 Results and discussion	16
3.3.1 Effect of weed control method on striga numbers	16
3.3.1.1 Hand hoeing	17
3.3.1.2 Hand hoeing plus inorganic fertilizer	18
3.3.1.3 Hand hoeing plus intercropping with cowpea	20
3.3.1.4 General discussion– Weed control effect on striga number	20
3.3.1.5 Effect of maize variety on striga numbers	20
3.3.2 Effect of weed control method on maize grain yield	22
3.3.3 Effect of weed control method on yield parameters	23
3.3.3.1 Shelling %	23
3.3.3.2 Number of plants per plot	24
3.3.3.3 Hundred seed weight	24
3.3.3.4 Number of cobs per plant	24
3.3.3.5 Lodging %	25
3.4 Conclusions	29
3.5 Recommendations	29
4. References	30
5. Appendices	34

LIST OF TABLES

Table	Page
Table 2.1.5.1 Effect of soil fertility level on striga growth and plant characters of four maize hybrids in Nigeria	9
Table 3.1 Effect of weed control method on striga numbers (Log transformed) at Shingwenyana, Mushwana and Nyathi's Fields	16
Table 3.2 Effect of weed control method on maize grain yield	22
Table 3.3 Effect of weed control methods on yield components at Shingwenyana, Mushwana and Nyathi	26

List of Figures

Figure		Page
Figure 3.1	Striga numbers (Log transformed) at 68, 83 and 105 days after planting at Shingwenyana's field following three agronomic practices.	17
Figure 3.2	Striga numbers (Log transformed) at 83 and 105 days after planting at Muswana's field following three agronomic practices.	18
Figure 3.3	Striga numbers (Log transformed) at 83 and 105 days after planting at Nyathi's field following three agronomic practices.	19
Figure 3.4	Effect of weed control method on striga numbers on maize varieties at Nyathi's field at 105 DAPS.	21
Figure 3.5	Interaction between Maize varieties and weed control method on shelling % of maize at Mafarana fields.	27
Figure 3.6	Effect of weed control method on the number of cobs per plant among maize varieties for Mafarana fields.	28

LIST OF APPENDICES

Title	Page
Appendix 5.1. Analysis of variance for number of striga at Shingwenyana as influenced by variety and weed control methods at 68 DAP	34
Appendix 5. 2. Analysis of variance for number of striga at Shingwenyana as influenced by variety and weed control methods at 83 DAP	34
Appendix 5.3. Analysis of variance for number of striga at Nyathi as influenced by variety and weed control methods at 83 DAP	34
Appendix 5.4 Analysis of variance for number of striga at Mushwana as influenced by variety and weed control methods at 83 DAP	34
Appendix 5.5 Analysis of variance for number of striga at Shingwenyana as influenced by variety and weed control methods at 105 DAP	35
Appendix 5.6 Analysis of variance for number of striga at Nyathi as influenced by variety and weed control methods at 105 DAP	35
Appendix 5.7 Analysis of variance for number of striga at Mushwana as influenced by variety and weed control methods at 105 DAP	35
Appendix 5.8 Analysis of variance for maize grain yield at Shingwenyana as influenced by variety and weed control methods	36
Appendix 5.9 Analysis of variance for maize grain yield at Nyathi as influenced by variety and weed control methods	36

APPENDICES

Title	Page
Appendix 5.10 Analysis of variance for maize grain yield at Mushwana as influenced by variety and weed control methods.	36
Appendix 5.11 Analysis of variance for Shelling % at Shingwenyana as influenced by variety and weed control methods.	37
Appendix 5.12 Analysis of variance for Shelling % at Nyathi as influenced by variety and weed control methods.	37
Appendix 5.13 Analysis of variance for Shelling % at Mushwana as influenced by variety and weed control methods.	37
Appendix 5.14 Analysis of variance for number of plants at Shingwenyana as influenced by variety and weed control methods.	38
Appendix 5.15 Analysis of variance for number of plants at Nyathi as influenced by variety and weed control methods.	38
Appendix 5.16 Analysis of variance for number of plants at Mushwana as influenced by variety and weed control methods.	38
Appendix 5.17 Analysis of variance for number of cobs per plant at Shingwenyana as influenced by variety and weed control methods.	39
Appendix 5. 18 Analysis of variance for number of cobs per plant at Nyathi as influenced by variety and weed control methods.	39
Appendix 5.19 Analysis of variance for number of cobs per plant at Mushwana as influenced by variety and weed control methods.	39

APPENDICES

Title	Page
Appendix 5.20 Analysis of variance for hundred seed weight at Shingwenyana as influenced by variety and weed control methods.	40
Appendix 5.21 Analysis of variance for hundred seed weight at Nyathi as influenced by variety and weed control methods.	40
Appendix 5.22 Analysis of variance for hundred seed weight at Mushwana as influenced by variety and weed control methods.	40
Appendix 5.23 Analysis of variance for lodging % at Shingwenyana as influenced by variety and weed control methods.	41
Appendix 5.24 Analysis of variance for lodging % at Nyathi as influenced by variety and weed control methods.	41
Appendix 5.25 Analysis of variance for lodging % at Mushwana as influenced by variety and weed control methods.	41

Abstract

Striga control through agronomic practices is the key to maize production predominantly in small holder farmers who cannot afford chemical weed control. Striga has affected maize yield in many areas in Limpopo Province, South Africa. Field experiments were carried out over one season at three sites to determine the effect of weed control method on striga on maize. The experiment was done at Mafarana village (Mopani District) near Tzaneen where striga is a serious problem. It was conducted on three fields, belonging to Mrs. Shingwenyana, Mr. Nyathi and Mr. Mushwana. A randomized complete block design experiment was laid out consisting of two factors; (i) two maize cultivars i.e. Zm 1421 and Zm 423 (ii) three agronomic practices: hand hoeing alone (as the control factor), hand hoeing plus inorganic fertilization using lime ammonium nitrate (LAN-28%N) at the rate of 56kg/ha, and hand hoeing plus inter-row intercropping of maize with cowpea. Cowpea cultivar Bechuana White was used for the experiment.

The results indicated that the effect of the method of weed control on the number of striga plants was significant at the 5% level of significance at all locations except at Mushwana's where at 105 days after planting (DAP) there was no significant effect. Striga numbers were lower in hand hoed plus inorganic fertilizer plots compared to hand hoed alone and hand hoed plus intercropping. At Shingwenyana's field the results indicated that effect of weed control methods on grain yield was significant and this is where the striga numbers were the highest than at Mushwana and Nyathi's fields. The effect of weed control methods on grain yield was significant only at Shingwenyana's field ranging from 2219kg/ha (hand hoeing), 2248kg/ha (hand hoeing plus inorganic fertilizer) to 3928kg/ha (hand hoeing plus intercropping). The effect of weed control method on shelling %, hundred seed weight, number of cobs per plant and lodging % was not significant. The effect of weed control method on number of plants per plot was significant at Mushwana's field only. There was significant difference of striga

numbers among maize varieties at Nyathi's field at 105 DAP. In hand hoed, striga numbers were 0.075 for Zm 1421 and 0.489 for Zm 423. Plots that were hand hoed plus inorganic fertilizer application striga numbers were 0.075 for Zm 1421 and 0.270 for Zm 423 and finally hand hoed plus intercropped plots with maize and cowpeas had striga numbers of 0.739 for 1421 and 0.850 for ZM 423. It is recommended that farmers improve the fertility status of their soils in order to control striga problem.