

CONTENTS

Preface	..	..	..	ix
Introduction	..	..	..	1
 <u>SESSION 1</u> INTRODUCTORY PAPERS				
THE IMPROVEMENT OF QUALITY TRAITS OF MAIZE FOR GRAIN AND SILAGE USE AS AN INTERNATIONAL AND INTERDISCIPLINARY TASK W.G. Pollmer	..	..	..	9
HIGH QUALITY PROTEIN MAIZE: ITS ROLE AND FUTURE PROSPECTS IN DEVELOPING COUNTRIES M. Bjarnason and S.K. Vasal	..	..	..	15
DISCUSSION	..	..	..	27
PRESENT STATUS AND FUTURE TRENDS OF MAIZE PRODUCTION AND UTILISATION IN RELATION TO BREEDING OBJECTIVES IN SWITZERLAND M. Menzi	..	..	..	29
 <u>SESSION 2</u> IMPROVEMENT OF PROTEIN QUALITY FOR GRAIN USE				
GENETIC MODIFIERS AND BREEDING STRATEGIES IN DEVELOPING HARD ENDOSPERM OPAQUE-2 MATERIALS S.K. Vasal, E. Villegas, M. Bjarnason, B. Gelaw and P. Goertz	..	..	..	37
DISCUSSION	..	..	..	73
PERFORMANCE OF HIGH-LYSINE MAIZE HYBRIDS UNDER WESTERN EUROPEAN CLIMATIC CONDITIONS D. Klein, W.G. Frölich, W.G. Pollmer and D. Eberhard	..	..	..	75
DISCUSSION	..	..	..	89
A NEW METHOD FOR PROTEIN EVALUATION FROM AMINO ACID PATTERN OF THE DIET J. Köhl	..	..	..	91
PRELIMINARY RESULTS ON METHODS TO DETERMINE AVAILABLE LYSINE IN MAIZE E. Meister	..	..	..	105
DISCUSSION	..	..	..	113

SESSION 3a IMPROVEMENT OF PROTEIN QUANTITY
FOR GRAIN AND SILAGE USE, 1.

GENETIC CONTROL OF PROTEIN PERCENTAGE IN A DIALLEL INVOLVING HIGH-PROTEIN INBREDS M. Motto, N. Difonzo, M. Perenzin, E. Gentinetta, T. Maggiore, F. Salamini and C. Lorenzoni	117
DISCUSSION	133
VARIABILITY FOR PROTEIN AND FIBRE CONTENT IN THREE DIALLELS OF MAIZE FOR SILAGE PRODUCTION T. Maggiore, E. Gentinetta, M. Motto, M. Perenzin, F. Salamini and C. Lorenzoni	135
DISCUSSION	151
PARENT-OFFSPRING CORRELATIONS IN MAIZE MATERIALS DIVERSE FOR PROTEIN CONTENT C.E. Mann, W.G. Pollmer and D. Klein	155
DISCUSSION	169

SESSION 3b IMPROVEMENT OF PROTEIN QUANTITY
FOR GRAIN AND SILAGE USE, 2.

MAIZE BREEDING FOR IMPROVEMENT OF KERNEL PROTEIN CONTENT USING ILLINOIS HIGH PROTEIN POPULATION A. Boyat, M. Derieux, F. Kaan and S. Rautou ..	173
DISCUSSION	183
BROADENING THE GENETIC BASIS OF MAIZE FOR GRAIN PROTEIN CONTENT BY USE OF EUROPEAN LOCAL POPULATIONS AND MUTAGENESIS F. Kaan, A. Boyat, R. Marie and A. Panouillé ..	185
DISCUSSION	193
DRY MATTER AND PROTEIN ACCUMULATION IN MAIZE HYBRIDS DIVERSE FOR PROTEIN CONTENT UNDER DIFFERENT WESTERN EUROPEAN ENVIRONMENTS W.G. Frölich, W.G. Pollmer and D. Klein	199
DISCUSSION	219

SESSION 3c IMPROVEMENT OF PROTEIN QUANTITY
FOR GRAIN AND SILAGE USE, 3.

RESPONSE OF HIGH PROTEIN AND CONVENTIONAL MAIZE HYBRIDS TO DIFFERENT LEVELS OF NITROGEN FERTILISATION D. Eberhard, W.G. Pollmer and D. Klein	223
DISCUSSION	237

PRELIMINARY RESULTS OF INVESTIGATIONS ABOUT THE N UPTAKE AND N TRANSLOCATION OF MAIZE HYBRIDS DIVERSE FOR PROTEIN CONTENT A.L. Schwab, D. Eberhard, D. Klein and W.G. Pollmer	..	..	..	241
STABILITY OF PERFORMANCE OF HIGH-PROTEIN MAIZE (<i>Zea mays</i> L.) HYBRIDS W.G. Pollmer, D. Eberhard, D. Klein and B.S. Dhillon	..	..	..	257
DISCUSSION	..	..	..	271
PRELIMINARY RESULTS CONCERNING THE N-ACCUMULATION IN THE MATURING KERNEL OF MAIZE HYBRIDS WITH DIFFERENT PROTEIN CONTENT F. Zink	..	..	..	273
DISCUSSION	..	..	..	287

SESSION 4a SILAGE QUALITY AND ANIMAL NUTRITION, 1.

A REVIEW OF THE CARBOHYDRATE CONTENT AND DIGESTIBILITY VALUE OF FORAGE MAIZE GROWN IN THE COOL CLIMATIC CONDITIONS OF THE UK AND THEIR RELEVANCE TO ANIMAL PRODUCTION R.H. Phipps	..	..	..	291
DISCUSSION	..	..	..	315
PRELIMINARY EVALUATION OF BROWN MIDRIB MAIZE HYBRIDS FOR THEIR FEEDING AND AGRONOMIC VALUE IN FRANCE A. Gallais, L. Huguet, H. Berthet, G. Bertin, B. Broqua, A. Mourguet and R. Traineau	..	..	..	319
DISCUSSION	..	..	..	337
ENERGY AND PROTEIN LEVELS IN DEHYDRATED MAIZE BASED RATIONS FOR GROWING-FATTENING YOUNG BULLS O. Lambot, B. Nicks, J.M. Bienfait, J. Denayer, C. Van Eenaeme and E. Cordiez	..	..	..	341
ENERGY AND PROTEIN LEVELS IN MAIZE SILAGE RATIONS FOR GROWING-FATTENING YOUNG BULLS J. Denayer, B. Nicks, J.M. Bienfait, O. Lambot, C. Van Eenaeme and E. Cordiez	..	..	..	365
DISCUSSION	..	..	..	383
MYCOTOXICOLOGICAL ASPECTS OF MAIZE QUALITY H.-M. Müller	..	..	..	385
DISCUSSION	..	..	..	407

SESSION 4b SILAGE QUALITY AND ANIMAL NUTRITION, 2.

INFLUENCE OF VARIETY, DEVELOPMENT STAGE, YEAR AND LOCATION UPON THE QUALITY OF SILAGE MAIZE M. Wermke and H.H. Theune	..	..	..	411
DISCUSSION	..	..	..	427
CONTENT AND IN VIVO DIGESTIBILITY (SHEEP) OF NUTRIENTS IN MAIZE VARIETIES HARVESTED AT DIFFERENT STAGES FOR SILAGE F. Gross	..	..	..	429
DISCUSSION	..	..	..	443
ESTIMATION OF NUTRITIVE VALUE OF SILAGE MAIZE BY USING CHEMICAL PARAMETERS AND IN VITRO DIGESTIBILITY E. Zimmer, H.H. Theune and M. Wermke	..	..	..	447
DISCUSSION	..	..	..	463
RECENT DEVELOPMENTS IN FEED EVALUATION ON THE BASIS OF IN VITRO DIGESTIBILITY EXPERIMENTS K.H. Menke and L. Raab	..	..	..	467
EVALUATION OF THE FEEDING VALUE OF MAIZE FOR SILAGE USE BY THE GAS PRODUCTION METHOD - PRELIMINARY RESULTS J. Dinkelaker, K.H. Menke, F. Gross, W.G. Pollmer and D. Klein	..	..	..	477
DISCUSSION	..	..	..	487

SESSION 5 GENERAL DISCUSSION AND CONCLUSIONS

SUMMARIES BY CHAIRMEN	..	..	..	493
DISCUSSION	..	..	..	497
CLOSING REMARKS	..	..	..	499
LIST OF PARTICIPANTS	..	..	..	501