Breeding of Silage Maize

Proceedings of the 13th Congress of the Maize and Sorghum Section of EUCARPIA (European Association for Research on Plant Breeding), Wageningen, the Netherlands, 9-12 September 1985

O. Dolstra and P. Miedema (Editors)

Pudoc Wageningen 1986
Contents

Preface ........................................... (x)

Opening session .................................. 1

H.A. te Velde: Maize for silage in the Netherlands ................................. 3

Use of genetic resources .......................... 17

C.W. Stuber: Use of exotic sources of germplasm for maize improvement ........ 19
F. Kaan & M. Derieux: Use of exotic maize material and building up of broadly based populations for European breeders ............................... 32

Cold tolerance .................................... 41

P. Stamp: Chilling stress in maize ................................................................. 43
M. Crèvecœur & J.F. Ledent: Effect of low temperature (10 °C) on growth, mitotic index and cell ultrastructure of maize leaves ......................................... 51
M. Herczegh & Cs. Marton: Cold stress of maize in a temperature gradient chamber ................................................................. 56
O. Dolstra & P. Miedema: Breeding for improved vegetative growth at low temperature in maize (Zea mays L.) ......................................................... 61
G.S. Galeev & N.I. Kiyashko: Simple method of evaluating cold resistance in maize lines early in development ......................................................... 71

Improvement of feeding value .......................... 75

B. Deinum & P.C. Struik: Improving the nutritive value of forage maize ........ 77
E. Zimmer & M. Wermke: Improving the nutritive value of maize ................. 91
M.E.V. Lourenço, I.C. Anderson & W.F. Wedin: Stover forage quality as affected by stalk strength in maize (Zea mays L.) ................................................. 101
M. Neštický & J. Húška: Stalk strength in maize with brown mid-ribs .......... 107
A.A. Belousov: Forage quality of high-protein opaque-2 maize hybrids of various complexity in relation to site and rate of fertilizer .................. 111
Selection criteria for silage maize

L. Pinter: Ideal type of forage maize hybrid (Zea mays L.)

Y. Barrière & R. Traineau: Characterization of silage maize: Patterns of dry matter production, LAI evolution and feeding value in late and early genotypes

F. de Wolff: Dry-matter content of stover as a selection criterion for silage maize

R.B. Hunter: Selecting hybrids for silage maize production: a Canadian experience

H.H. Geiger, A.E. Melchinger & G.A. Schmidt: Analysis of factorial crosses between flint and dent maize inbred lines for forage performance and quality traits

Closing session

K.D. Alber: Report of the activities in the Maize Northern Committee


Z. Królikowski: Section's president report

Abstracts of posters

Bong-ho Choe & Hee-bong Lee: A maize variety with a large number of tillers and ears, and its potential for silage production

I. Bos: Relative efficiency of direct and indirect mass selection for biomass yield

F.M. Engels & J.W. Cone: Structure and digestibility of stem cell walls of maize (Zea mays) grown at different temperatures

P.F. Fransz & J.H.N. Schel: Response of two genotypically different maize strains in vitro: comparative cytology

P.R. van Hasselt: Possibilities of using chlorophyll fluorescence as a rapid non-destructive screening method for cold tolerance

Y. Hebert: Genetic variability in the rate of leaf appearance in maize during the early stage of growth

M. Ivanović: Genetic analysis for grain yield of inbred lines of maize selected from different cycles of BSSS synthetic

L. Kojic & R. Stojsin: Kernel milk-line as a visual maturity indicator in maize (Zea mays L.)


M. Menzi: Assessment of yield and quality of silage maize

Z. Pajic: Combining ability of maize (Zea mays L.) inbred lines in different generations of inbreeding

N. Pešev: Performance of early versions of hybrids developed from late elite maize inbred lines

J. Moreno-González: Selection for earliness in Corn Belt maize populations


A. Pucarić, J. Gotlin & J. Mikec: Performance of early maize hybrids for grain and silage grown as second crop in northwestern Croatia

M. Tollenaar: Effect of temperature on accumulation and partitioning of dry matter during early phases of development in maize
N. Tomov & N. Simeonov: Study on the possibilities of intersubspecies hybridization for improvement of silage maize 181
N. Mochizuki: Breeding of maize hybrids for whole-crop silage in Japan 182
A. Monteagudo: Utilization of local Spanish maize populations 183

List of participants 185
Index of authors 189
Index of descriptors 190