631.523 HYB

CONTENT

Foreword	vii
Recommendations	1
Status of hybrid rice research and development	7
Prospects for hybrid rice in the Asia-Pacific Region	25
Organization of a hybrid rice breeding program	33
Heterosis in rice	39
Biochemical basis of heterosis in rice	55
Physiological bases of heterosis in rice	67
Role of wide-compatibility genes in hybrid rice breeding	79
Rice male sterile cytoplasm and fertility restoration	85
Development of CMS lines in hybrid rice breeding	103
Cytohistology of cytoplasmic male sterile lines in hybrid rice	115
Ferlity transformation and genetic behavior of Hubei photoperiod-sensitive genic male sterile rice	129
Chemical emasculators for hybrid rice	139
Effects of a new nontoxic chemical gametocide on fice	14/
Improving nellingtion characteristics of improving rise	157
Improving polination characteristics of japonica rice	105
Inproving outcrossing rate in rice	1/3
Disease and insect resistance in hybrid rice	101
Grain quality of hybrid rice	201
A gronomic management of rice hybrids compared with conventional varieties	201
Nitrogen management for hybrid rice in southern United states	217
The use of hybrid rice technology ' an economic evaluation	229
Hybrid wheat status and outlook	243
Hybrid whole states and outlook	213
ABSTRACTS	
Heterosis in rice	
Genetic distance and heterosis in japonica rice	257
Contributions of some quantitative characters to genetic diversity in rice	257
Genetic effects of cytoplasm on hybrid rice	258
Comparison of heterosis effects of different cytoplasm types in rice	259
Combining ability of some agronomic characters in hybrid rice	260
Esterase isozyme and its application in hybrid rice breeding	260
Preliminary analysis of heterosis in japonica rice	261
Male sterility and fertility restoration	
Classification of male sterile cytoplasms in rice by their nuclear-cytoplasm interactions	262
A new cytoplasmic source of male sterility in rice	264
Breeding male sterile lines by crossing indica varieties	264
Breeding maintainer lines of a wild abortive cytoplasmic male sterile line	265
Geographical distribution of fertility restoring genes for cytoplasmic male sterility in sinica rice	266
Parental sources of commercial combinations of hybrid rice in China	266
Evaluation of selective male gametocidal activity of chemical sterilants in rice	267
Broading procedures for hybrid rice	
Dictuing procedures for hydrid file Use of photoperiod sensitive genic male sterility in rice broading	267
Breeding and use of a cytosterile line	201 268
Development of japonica type restorers from indica / japonica crosses	269
Using anther culture to develop parental lines for hybrid rice breeding	269
Using antice culture to develop patential lines for hybrid file biccullig	207

Diseases / insect resistance and grain quality	
Disease and insect pests in hybrid rice in China	270
Using backcrossing to improve diseases resistance of cytosterile Zhen-Shan 97	271
Improved grain quality and yielding ability of hybrid rice	271
Outcrossing mechanisms and hybrid seed production	
Genetic mechanisms to enhance hybrid rice seed production	272
Techniques to get high yield in hybrid rice seed production in China	273
Impurity prevention and stock renewal of parental lines of hybrid rice	273
Using isozymes to determine purity of hybrid rice seed	274
Suitability of hybrid rice seed production techniques in Indonesia	274
Cultural management of hybrid rice	
Nutrient requirement and fertilizer management in hybrid rice	275
Optimum plant population of hybrid rice in single cropping	276
Cultural manipulation of plant type in hybrid rice	277
Minimum tillage and direct seeding in hybrid rice	277
Ratooning in hybrid rice	278
Physiological and genetic research in hybrid rice	
Physiological and biochemical characters of hybrid rice in Dongting Lake region, china	279
Seasonal variation in dry matter production of hybrid rice in Changsha, China	280
Response of hybrid rice combinations to photoperiod and temperature	280
Physiological characteristics of hybrid rice roots	281
Relations between physiological heterosis of root and shoot systems of hybrid rice	281
Using radioactive tracers to predict grain yield of hybrid rice	282
Mitochondrial DNA modifications associated with cytoplasmic male sterility	283
Molecular cloning and sequencing of small-cicular DNAs in male sterile cytoplams of rice	284
Plasmidlike DNA in mitochondria of WA type rice	284
Amino acid changes in the development of rice hybrid and parent	285
Nucleoli and sat-chromosomes of japonica hybrids	285
Prospects for hybrid rice production through photoplast fusion	286
Hybrid rice worldwide	
Hybrid rice breeding in Japan	287
The hybrid rice program in India	287
Prospects for hybrid rice in Indonesia	288
Hybrid rice breeding in Malaysia	289
Performance of hybrid rices in Texas, USA	289
Hybrid rice research in South Korea	290
Agronomic performance of hybrid rice in northern Mexico	291
Participants	292
Appendices	298