

# FOREWORD

## SYMPOSIUM : DROUGHT TOLERANCE IN SUNFLOWER

The aim of this ISA-Symposium is to circulate information and open the way to discussion on research themes dealing with several scientific topics. In fact, most international conferences are organized following a vertical thematic approach, little favourable to stress out a certain number of results the theoretical and practical importance of which cannot be denied.

The Symposium on Drought Tolerance was made up of the following papers and took place in the framework of the 14th International Sunflower Conference in Beijing on June 14, 1996.

The publication of these communications will allow readers to be informed of recent knowledge concerning the physiological bases of drought tolerance. The validation of these texts is the next step before field evaluations. Lastly, we will not forget that all new products born out of research must find their applications in cropping systems characterized by specific constraints and objectives. That is the opening we were looking forward to with the last paper.

We shall note that most authors of this Symposium are European research workers, which corresponds to the fulfilment of several research programmes sponsored by the EU and does not express a personal wish from ISA to give some priority to a geographic area, even if Mediterranean countries are particularly concerned by crop adaptations to dry weather conditions. Our intention for the future would be to organize again a new meeting on this topic which would then take all studies and research work carried out all over the world on this topic into account.

We hope that our readers will find interesting information in this publication and would like to thank authors for their contribution.

André POUZET

# CONTENTS :

<b>01. Note de synthèse sur la tolérance à la sécheresse chez le tournesol.</b> André Merrien et Luc Champolivier (France) .....	7
<b>02. Effects of water stress on sunflower physiology.</b> Chantal Nicco, M. Piquemal, J.C. Latché, G. Cavalié and André Merrien (France).....	17
<b>03. Prospects for the use of physiological traits during the selection for drought resistance in a sunflower population.</b> Mario Baldini, Gian Paolo Vannozzi, Franco Cecconi and Maurizio Turi (Italy) .....	26
<b>04. Differential expression of water stress-regulated genes in drought tolerant or sensitive sunflower genotypes.</b> Françoise Cellier, Olivier Ouvrard, Karine Ferrare, Didier Tusch, Thierry Lamaze, Jean-Marc Dupuis and Francine Casse-Delbart (France) .....	36
<b>05. Looking for physiological and molecular markers of leaf cuticular transpiration using interspecific crosses between <i>Helianthus argophyllus</i> and <i>Helianthus annuus</i>.</b> Eric Belhassen (1) , V.P.R. Castiglioni (2) , C. Chimenti (3)), Yves Griveau (1), I. Jamaux (1) and A. Steinmetz (1) (1) France ; (2)Brasil and (3) Argentina .....	39
<b>06. Leaf angle as an indicator for gauging water stress in sunflowers.</b> Menon Parameswaran (Australia) .....	45
<b>07 Lethal deshydratation threshold od leaf area : interest of a test for breeding sunflower genotypes for the "stay-green" character under water stress.</b> André Merrien, Luc Champolivier, K. Marette and Benjamine Vandeputte (France) .....	52

<b>08. Stability parameters in drought resistance sunflower lines derived from interspecific crosses.</b>	
Daniel Gomez-Sanchez (1 & 2), Gian Paolo Vannozzi (1), Sattar Tahamasebi Enferadi (1) Margherita Menichincheri (1) and Gemini delle Vedove (1) (1) :Italy & (2) : Mexico .....	61
<b>09. Study of stability parameters for drought resistance in sunflower hybrids derived from interspecific crosses.</b>	
Margherita Menichincheri (1), Gian Paolo Vannozzi (1), Daniel Gomez-Sanchez (2) (1) : Italy & (2) : Mexico .....	72
<b>10. Yield evaluation of sunflower genetic resources in relation to water supply.</b>	
Yves Griveau, Hervé Serieys, J. Cleomene and Eric Belhassen (France) .....	79
<b>11. Evaluation of experimental sunflower hybrids derived from interspecific crosses for drought tolerance.</b>	
Gian Paolo Vannozzi (1), Margherita Menichincheri (1) and Daniel Gomez-Sanchez (2) (1) : Italy & (2) : Mexico .....	85
<b>12. Land use systems analysis : parameterization of a sunflower crop in a Mediterranean climate.</b>	
Jorge Barros (Netherlands) .....	97