

ICARDA's strategy for biotechnology: objectives, organizational structure and areas of research

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RESUME - "La stratégie de l'ICARDA dans le domaine de la biotechnologie : objectifs, structure d'organisation et domaines de recherche". ICARDA (Centre International de Recherche Agronomique pour les Régions Sèches) a pour objectif majeur l'amélioration de l'agriculture dans les zones sèches du Proche-Orient et de l'Afrique du Nord. Ce progrès passe par les techniques classiques de l'amélioration des plantes mais aussi par les voies nouvelles des biotechnologies. La mise en oeuvre de biotechnologies est décidée en tenant compte de leur supériorité par rapport aux voies conventionnelles, de leur coût, de leurs impacts socio-économiques et des risques qu'elles comportent. Elles sont introduites dans les laboratoires d'ICARDA par des échanges de chercheurs et par des consultants. Ensuite, elles sont appliquées soit dans le cadre d'ICARDA, soit dans le cadre des Centres de Recherche Nationaux. A titre d'illustration diverses biotechnologies actuellement mises en oeuvre concernent les points suivants : immunodiagnostic, cultures de tissus, cultures d'anthères, cultures d'embryons, sondes oligonucléotidiques, RFLP, PCR, transfert de gènes...).

Mots-clés : Sécheresse - Amélioration des plantes - Biotechnologies - Résistance à la sécheresse - Immuno-diagnostic - Cultures in vitro - Sondes moléculaires - Transfert de gènes.

SUMMARY - The major objective of ICARDA (International Centre for Agricultural Research in Dry Areas) is agricultural improvement in the Middle East and North Africa dry areas. These advances are to be achieved by means of conventional plant breeding techniques, and new biotechnological methods. The applications of biotechnology are determined taking into account their superiority as compared with traditional techniques, their cost, their socio-economic impact and risks involved. Their introduction in

The emphasis at ICARDA on collaborative research with and training of scientists in the National Agricultural Research Systems (NARSs) in the region has led to increasing self-reliance in national scientists in carrying out crop improvement research. They are, therefore, now anxious to apply new concepts and technologies in their crop improvement efforts and ICARDA has a role to play in identifying the relevant biotechnologies and ensuring their access to those NARSs that are ready to use them.

Objectives

ICARDA looks at the application of biotechnology in the improvement of ICARDA mandate crops with the aim of either realising those objectives that hitherto proved unattainable by the use of conventional research techniques or in improving the efficiency and economy

scientists of ICARDA attend relevant international conferences and visit institutions and organizations leading in various techniques. In the workshops organized at ICARDA, scientists from the center, NARS and leading institutions involved in biotechnological research discuss the selection of the best technologies and prepare recommendations. The selected techniques are then presented at ICARDA's internal planning meetings where the initiation of any project is finally approved.

Step two

The second step involves establishing the new techniques in the laboratories at ICARDA. If necessary, short-term consultants are contracted or ICARDA's scientists are sent abroad to bring back expertise in the new technique for establishment and use at ICARDA. In this context the students registered

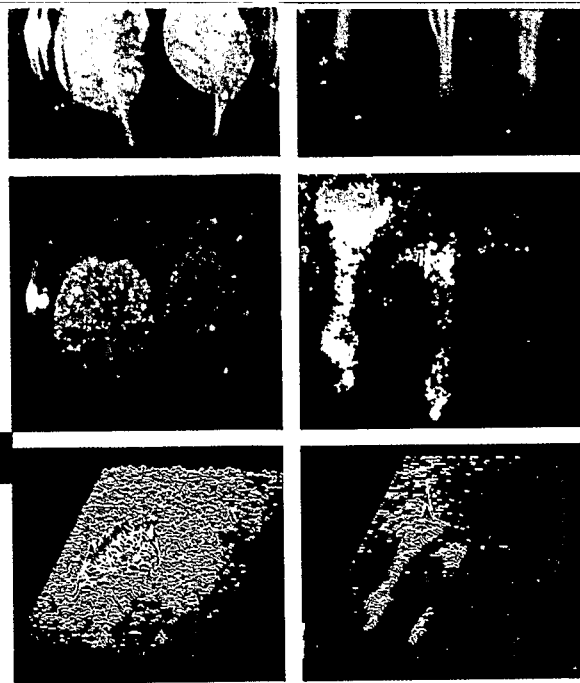
**Organization of Biotechnology
Research at ICARDA**

ICARDA has established a Biotechnology Research
Unit to function as a link between research and

Haploid plant production

Haploid plant production followed by chromosome
doubling offers the possibility of developing completely
homozygous lines from heterozygous parents in a single

integration. Further work will be conducted to advanced institutions research efforts will be pursued to



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SERIE A: SEMINAIRES MEDITERRANEENS
Número 14

«PLACE ET ROLE DES BIOTECHNOLOGIES DANS LES SYSTEMES
DE RECHERCHE AGRONOMIQUE DES PAYS MEDITERRANEENS»

La conception de la maquette, la mise en page
et l'édition de ce numéro
d'*Options Méditerranéennes* ont été assurées
par l'Atelier d'Édition de l'

The design, layout and editing of this issue
of *Options Méditerranéennes*
were done by
the Publications Office of the

INSTITUTO AGRONOMICO
MEDITERRANEO DE ZARAGOZA

Photographie de couverture/Cover photograph: Low-light video-image analysis of *mas* promoter activity
in plant organs using the bacterial luciferase reporter enzyme. Courtesy of Prof. Dr. J. Schell (Max Planck
Institut für Züchtungsforschung, Köln)

Imprimeur/Printer:
Calidad Gráfica, S. A. - ZARAGOZA
I.S.S.N.: 1016-121X
Dep. Legal: Z-253/92

Tirage/Copy number: 600 exemplaires/copies

Fiche bibliographique / Publication data

PLACE ET RÔLE DES BIOTECHNOLOGIES DANS LES SYSTÈMES
DE RECHERCHE AGRONOMIQUE DES PAYS MÉDITERRANÉENS

Actes du Colloque de VALENCIA (Espagne)
18-20 juin 1990

Ed. Y. DEMARLY

CIHEAM (Centre International de Hautes Etudes Agronomiques Méditerranéennes), 1992

(Série A. Séminaires Méditerranéens, n.° 14 *Options
Méditerranéennes*), p. 188

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