

Current Status of Biotechnology Research and Development (R & D) in West Asia and North Africa (WANA) Region

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Abstract

This paper, submitted to APAARI Expert Consultation on Agricultural Biotechnology, Biosafety and Biosecurity to be held on 27-28 October 2011 at Taiwan Agricultural Research Institute, Taichung, Chinese Taipei, to discuss the current status and perspectives of biotechnology research and development and biosafety-related issues in WANA region. It highlights the Strengths, Weaknesses, Opportunities and Threats (SWOT) related to generation, adaptation and adoption of appropriate biotechnologies for the region and development and implementation of biosafety regulatory system. It further discuss its linkage to biosecurity at regional and sub regional levels. It finally conclude on the further issues focusing on the regional priority action plans.

Many WANA countries have made good progress in biotechnology and biosafety. This is reflected by the increasing in the number of functional biotechnology labs and research staff in most AARINENA countries. Many countries have nucleolus of basic infrastructure and trained personnel for tissue culture, molecular biology in plants, animals and biomedicine. Along the gradient of biotechnology, tissue culture and molecular markers are commonly used in WANA Region. While, more upstream technologies (genomics, proteomics etc.) are restricted to a few institutes. Also, genetic engineering is increasingly finding a wider applications in the region where, some countries have capacities for producing GM crops (Egypt, Iran, Morocco, Tunis, Turkey, Syria...), but, transgenic plants produced in laboratories are still confined in growth chambers or greenhouses under containment conditions. On the other hand, AARINENA countries does not import, grow, adopt or export GMOs.

Most of the countries of the region have their primary legislation in place and are currently developing specific implementing regulations in line with the international obligations.

National and Regional Perspectives of the applications of R &D biotechnologies concerning the biosecurity measures in AARINENA *countries emphasize on the integrating* the best outputs of plant sciences, understanding the societies expectations and international regulations on handling GMOs, genes conferring drought and salt tolerance to elite cultivars of agronomic importance, promoting the application of biotechnology as a tool for sustainable development, as well as to make use of **ALL** options for food security and to increase food production in a sustainable way, including genetic engineering too!

In brief, it can be highlighted that:

- Biotechnology applications in AARINENA countries is widely increasing to support solving constraints of agricultural production in the region, but with not so much investments.

- Biosafety regulations and NBFs were developed or under way in most AARINENA countries, but, with difficulties in the implementation of the caution protocol because appropriate structures of the control and evaluation of risk assessment are not available.
- Priority is for enabling environment for investment in agricultural biotechnology in the region (policy and investment environment, strong collaboration between public and private sectors, target products, marketing....
- AARINENA countries have to make use of ALL options to increase food production in a sustainable way, including tissue culture, genetic engineering and GM crops!