the 32 Paradigm Shifts will not be accepted immediately, if at all, but they will engender some worthwhile discussion.

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Agricultural Biotechnology in International Development.

This book is the proceedings of a conference, “Biotechnology for a Better World” held in Asilomar Conference Center, Pacific Grove, CA, in April of 1997. The main sponsor and coordinator of the conference was a project, Agricultural Biotechnology for Sustainable Productivity, at Michigan State University.

The primary audience is those individuals involved and or interested in international plant biotechnology at all levels from program development, partnerships, research definition, implementation, safety, and intellectual property rights. An audience could include upper level undergraduates through those with an advanced degree. Having served on a board of an international center, I found the information regarding capacity building, modeling partnerships, and evaluation of the problems and challenges of developing sustainable research programs in foreign countries of Asia, Africa and South America to be excellent. This book should be recommended reading for individuals serving on international center boards, or working in international agricultural programs.

The book is divided into six major sections including (i) the needs and potential uses of agricultural biotechnology with perspectives of developing countries; (ii) the application of biotechnology to food security crops; (iii) the application of biotechnology to non-traditional crops; (iv) issues surrounding the development, transfer, adaptation, and utilization of agricultural biotechnology for emerging nations; (v) developing and accessing agricultural biotechnologies with international, U.S., developing country issues in perspectives and experiences; (vi) and a final part on how developing countries turn biotechnology into business by moving research into products.

There is a lot of valuable information within these sections that is critical to understand in developing international assistance programs in plant biotechnology with foreign countries. There are issues discussed including the concerns related to introduction of transgenic crops into their centers of origin, how to develop the capacity to do biotechnology, concerns regarding infrastructure development, and government commitment. There are excellent overviews on how collaborations between foreign governments and U.S. companies are structured, and constraints in regulatory and intellectual property fields.

Lupins as Crop Plants: Biology, Production and Utilization.

Lupins as Crop Plants is the first comprehensive book on lupin as a crop. The book serves as a comprehensive handbook and as a synthesis of most of the available literature. Although lupin species have been cultivated for over 2000 years, only recently has this crop received the focus and attention it deserves. John Hamblin, in his preface, explains that “domestication of the three new species from one to five in such a short time is probably unique in the history of agriculture. What is even more remarkable is that further four species from the genus have since been cultivated or at least have all the domestication genes available and will be fully domesticated before the end of the millennium.” This text makes it very clear that much of the information in the book is derived from Australian experience. Gladstones released the first variety, ‘Uniwhite,’ in 1967 and production reached 1.4 million tonnes in 1995. The production and interest is clearly the result of the work that the Australians made in breeding, selection, and other associated sciences. This text is divided into 15 chapters, and can be classified into four broad categories: biology, selection, and breeding; physiology; agronomy; and economics and utilization.

The first chapter, written by J.S. Gladstones, gives a detailed discussion of the distribution, origin, taxonomy, and importance of Lupinus. This chapter provides a good introduction to lupin domestication because a number of species that are agronomically important have a distribution in the new world as well as populations within the Mediterranean and elsewhere. The present natural distribution and habitats provide us with clues for behavioral traits observed within modern lupin lines. The major collections and provides knowledge of sites of origin, as well as conditions for specific adaptation. Included are descriptions of soil pH, altitude, rainfall, phenological data, and yield components, and ranges for the species.

To further the discussion of lupin genetic resources, a chapter by C.A. Atkins et al. provides a concise and detailed discussion of the cytogenetics of Lupinus. Topics include the identification of genomes; attempts at interspecific hybridization; and the use of repetitive sequences in lupin genomics.

The second chapter continues with a review of the genetic resources of Lupinus. This chapter focuses on the use of stocks including mutants, selections, transgenics, and other lupin specific types that are critical for lupin domestication and improvement. One of the things that makes studying lupins interesting is that sweet cultivated lupins were “domesticated during the past sixty years and are genetically closer to their wild and landrace parents.” The chapter discusses major collections and provides knowledge of their regions and conditions for specific adaptation. Included are descriptions of soil pH, altitude, rainfall, phenological data, and yield components, and ranges for the species.

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The book concludes with a chapter on the breeding and genetics of Lupinus. This chapter focuses on the use of stocks including mutants, selections, transgenics, and other lupin specific types that are critical for lupin domestication and improvement. One of the things that makes studying lupins interesting is that sweet cultivated lupins were “domesticated during the past sixty years and are genetically closer to their wild and landrace parents.” The chapter discusses major collections and provides knowledge of their regions and conditions for specific adaptation. Included are descriptions of soil pH, altitude, rainfall, phenological data, and yield components, and ranges for the species.

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