

**Conflicts, Cooperation, and Coevolution:  
The Relationship Between Mexico's Agricultural Research-  
Extension System and the Small Farmer in Mexico**

by

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Thesis

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## Preface

The concept for this thesis originates with history of science courses in which I first had the opportunity to look critically at the history and development of science. Having sufficiently demonstrated to myself that scientific communities, despite their "ivory tower" image, are thoroughly enmeshed in the political life of our societies, I wondered about the many ways in which we as a society could gain greater control of scientists' activity, and their product--scientific knowledge and technology.

My initial thesis topic was about the connection between maize agricultural biotechnology and the small farmers of Mexico. However in my studies I soon learned that decisions made in Mexico's scientific system were affecting the small farmers in a very clear way, and so my interest shifted to an inquiry about how Mexico's agricultural research apparatus--the actors, the institutions, their agendas, and their means--relates to the development of small farmers' agriculture. This second topic spoke more directly to me, to the problems that small farmers in Mexico face, and to the questions of world agricultural needs.

Mexico's apparent inability to extricate its small farmers from conditions of hunger and poverty, in spite of the nation's status as the twentieth in the world with respect to industries and communication and transportation infrastructure, makes clear that there are pressing social and political reasons for examining the agricultural research system.

Mexico's ruling party, the Institutional Revolutionary Party (PRI) owes its position at the head of the government to the courageous peasant revolutions of 1910's and 20's. Indeed, the various administrations have made earnest efforts to secure the rights of the

peasants, but the tide of unbalanced political alliances and economic development along the way have meant that the peasants' rightful lot remains an unmet challenge.

Moreover, as economies and political systems are intertwined, so are the environmental futures of the United States and Mexico connected. Action plans to guide future development are needed, not just for the sake of Mexican small farmers, but also for the sake of their neighbors to the north, the United States.

Thus my thesis attempts to answer the question: Where are there strengths and shortcomings within the relationship between Mexican small farmers and Mexico's agricultural research system? What changes are needed in order make agricultural science serve small farmers more effectively? Chapter One is an introduction to the larger political, social, and economic context of the Mexican small farmers, wherein the recent events and factors influencing shifts in agricultural development are briefly discussed. Chapter Two is a more detailed discussion about the small farmers agriculture, with a special emphasis on the outstanding features related to their need for and ability to contribute to scientific research. In Chapter Three I present recently developed frameworks for agricultural research and extension and their insights, and in Chapter Four I evaluate the Mexican agricultural system's failures and successes by comparing it to the normative criteria set up in Chapter Three. In Chapter Five I summarize the options for future action that Mexico faces vis a vis the development of small farmer agriculture, with a special emphasis on how overarching concerns such as sustainability, equity, and self-determination affect the outcome.

By comparing the Mexico's agricultural research system--in terms of the research institutions, goals, methods, agendas, and actors--to the normative model that I elucidate for agricultural research, it becomes possible to clearly view the shortcomings in the Mexican agricultural research system, to understand why research continues to be biased against the small farmers in Mexico, and finally to begin to see options for change.