



In Partial Fulfillment of the Requirements for the Degree of

Master of Arts
Chrissie Bausch

Will defend her thesis

**Environmental Sustainability and Conventional Agriculture:
An Assessment of Maize Monoculture in Sinaloa, Mexico Using
Multi Criteria Decision Analysis and Social Network Analysis**

Abstract

Sinaloa, a coastal state in the northwest of Mexico, is known for irrigated conventional agriculture, and is considered one of the greatest successes of the Green Revolution. With the neoliberal reforms of the 1990s, Sinaloa farmers shifted out of conventional wheat, soy, cotton, and other commodities and into white maize, a major food staple in Mexico that is traditionally produced by millions of small-scale farmers. Sinaloa is now a major contributor to the national food supply, producing 26% of total domestic white maize production. Research on Sinaloa's maize has focused on economic, social, and agronomic components. Little attention, however, has been given to the environmental sustainability of Sinaloa's expansion in maize. With unique coastal and terrestrial ecosystems that support biodiversity, as well as economic activities like fishing and tourism, the environmental consequences of agriculture in Sinaloa are important to monitor. Agricultural sustainability assessments have largely focused on alternative agricultural approaches, or espouse alternative philosophies that are biased against conventional production. Conventional agriculture, however, provides a significant portion of the world's calories. In addition, it is highly incentivized through subsidies and other institutions, complicating transitions to alternative modes of production.

Meeting the agricultural sustainability goals of food production and environmental stewardship will require starting conventional agriculture on a more sustainable path. One step toward achieving this goal is structuring agricultural sustainability assessments around achievable goals that encourage continual adaptations toward sustainability. My thesis attempts this by assessing conventional maize production in Sinaloa at the regional/state scale using social network analysis and incorporating stakeholder values through a Multi Criteria Decision Analysis approach. Results of the analysis show that the overall sustainability of Sinaloa

maize production is far from the ideal state. I conclude by making recommendations on how to improve the sustainability of maize production, and how to better monitor the sustainability of agriculture in Sinaloa.

July 6, 2011

10:00 a.m.

Wrigley Lecture Hall 401

Faculty, students, and the general public are invited.

Supervisory Committee:

Dr. Hallie Eakin (Chair)

Dr. Luis Bojórquez-Tapia (Member)

Dr. Daniel Childers (Member)