

US EPA ARCHIVE DOCUMENT



# Pollination and fruit set of apples in home gardens of the Kyrgyz Republic

## Overview



This interdisciplinary research project seeks to determine the sustainability of home garden management practices and their role in the conservation of fruit tree varieties by using an ethnoecological research approach in the mountainous, southern lakeshore region of the Issyk-kul Biosphere Reserve, Kyrgyz Republic. I combine sociological and ecological research methods to determine the diversity status of home gardens and factors that influence yields.

## Why study pollination?

- Successful pollination in home gardens depends on human management decisions due to biological requirements of fruit trees and pollinators
- Inadequate pollination is a critical factor limiting apple production in the Himalayan Region; importance unknown in Kyrgyzstan
- Kyrgyz pollinator communities are unknown

## Why study apple pollination?

- Apple trees dominate Kyrgyz gardens
- Apple flowers require pollen from a different variety to set fruit necessitating varietal diversity in gardens for good yields
- Apple varieties can only be maintained through grafting, dependent on management
- Apple varieties are being removed from gardens to grow fewer, more commercially important varieties – a practice that might limit pollination

## Ethnoecological Approach to Home Garden Production



## 2003 Study

1200+ randomly selected households from 7 villages interviewed

- Socio-economic status
- Home garden vs. Other production
- Perceived ecological problems

## 2004 Study

- Pilot pollination study in 2 villages
- Full garden mapping
- Daily home garden production logs
- Semi-structured interviews to identify management practices and motivations

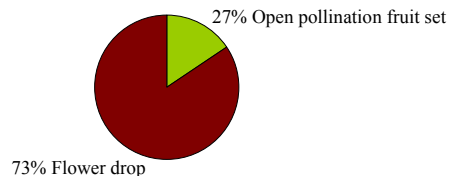
## 2005 Study

- Larger scale pollination study to clarify mixed results
- Soil analyses
- Daily home garden production logs

## 2004 Pilot Pollination Study – Mixed Results

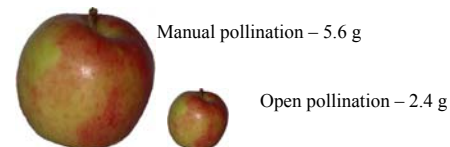
### APPLE POLLINATION IS NOT LIMITED.

When at least 5% of flowers become fruits, pollination is not limited.



### APPLE POLLINATION IS INADEQUATE.

Inadequate pollination due to failure to pollinate all 5 apple ovules or poor quality pollen results in small and/or misshapen fruits.



In cooperation with:  
Community Business Forum, Kyrgyz NGO  
Kyrgyz National Academy of Sciences  
Tamga Ayil-Okmutu

For further information:  
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