Ecology, economics of production and trade in mirraa around Marsabit Mountain in Northern Kenya

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Outline of the presentation

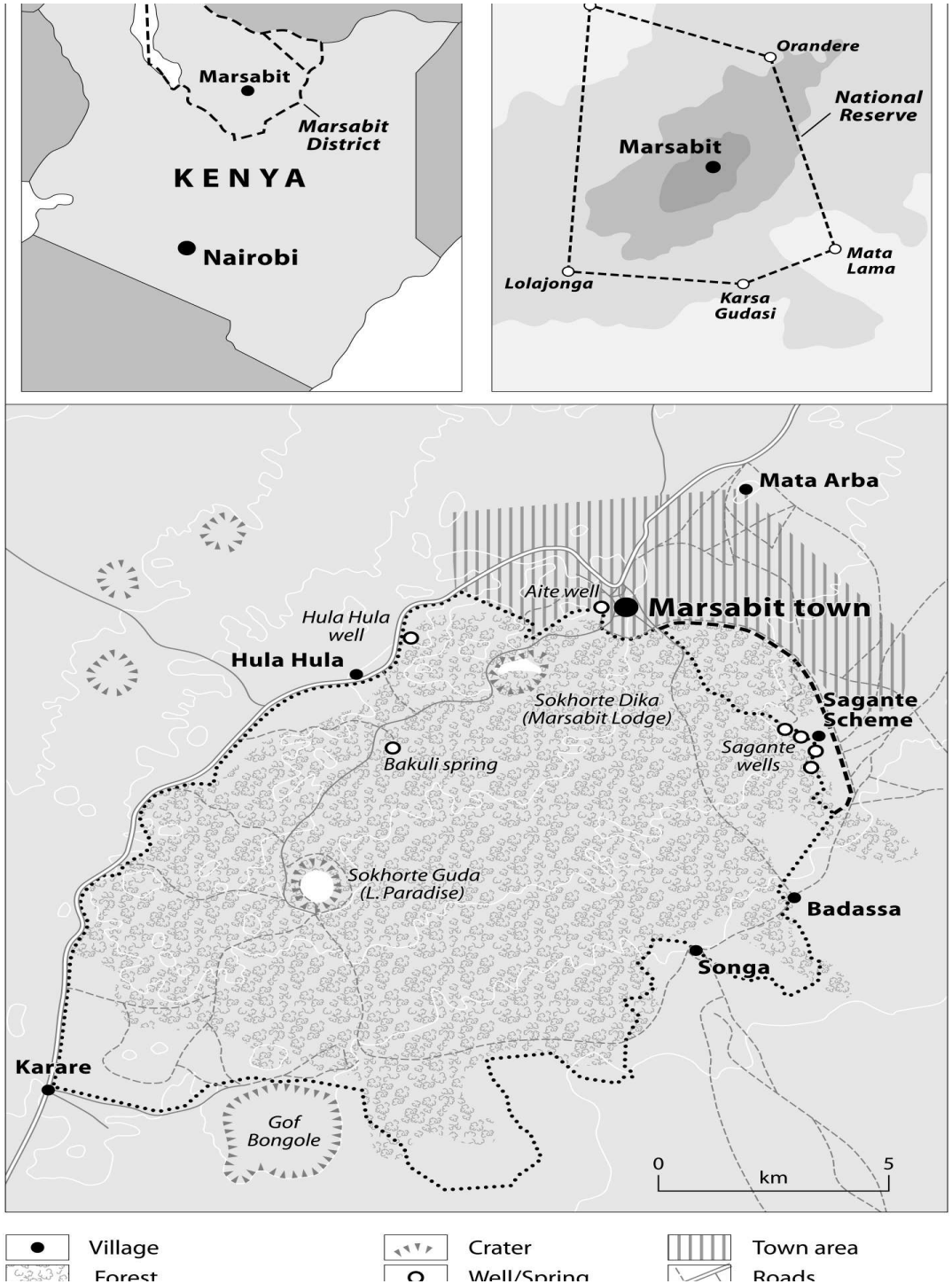
- The background /ecology of the study area
- Objetcive of the study
- Methods of research
- Outpout, gross margin and variable costs of mirraa and other crops
- Trade in mirraa in and outside Marsait
- Concluding remarks

Background and ecology of the study area

- The mountain is characterized by cool to warm temperatures (below 25^{o}C),
- receives relatively high rainfall of 800 mm/yr
- relatively fertile volcanic soils
- The surrounding lowlands are mainly suitable for nomadic pastoralism

The study area - 1

- Marsabit mountain
  - It has a unique climate - montane forest
  - Well drained and very good soils for arable farming under rain-fed agriculture
  - The mountain ecosystem is one of the most ecologically sensitive areas in Kenya



Map of the study area, including Marsabit Mountain

Ecology of the study area

- Mirraa (Khat) has become a lucratic cash crop in the region since the last 10 years
- Increasing mirraa tree plantations on the mountain
- Mirraa growing activities are undertaken mainly on small-scale farms and in relatively wetter ecological zones of the mountain

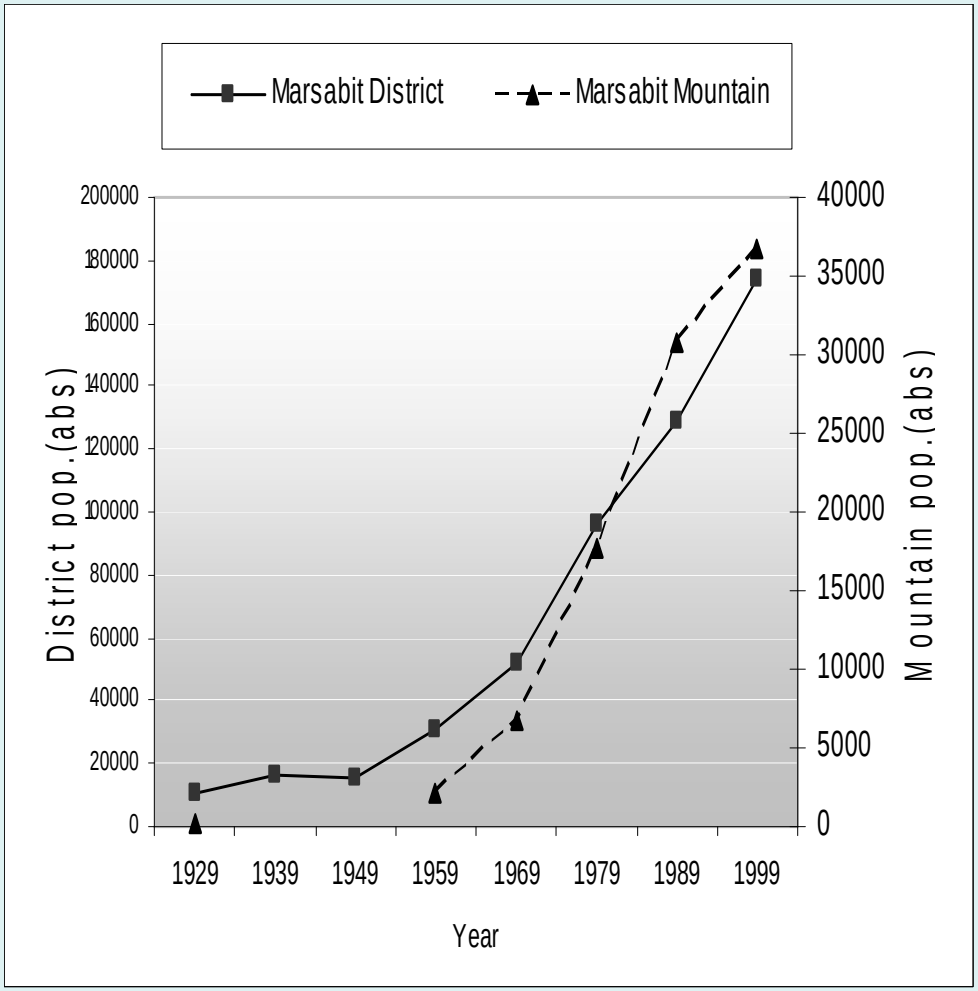
The objectives of the study:

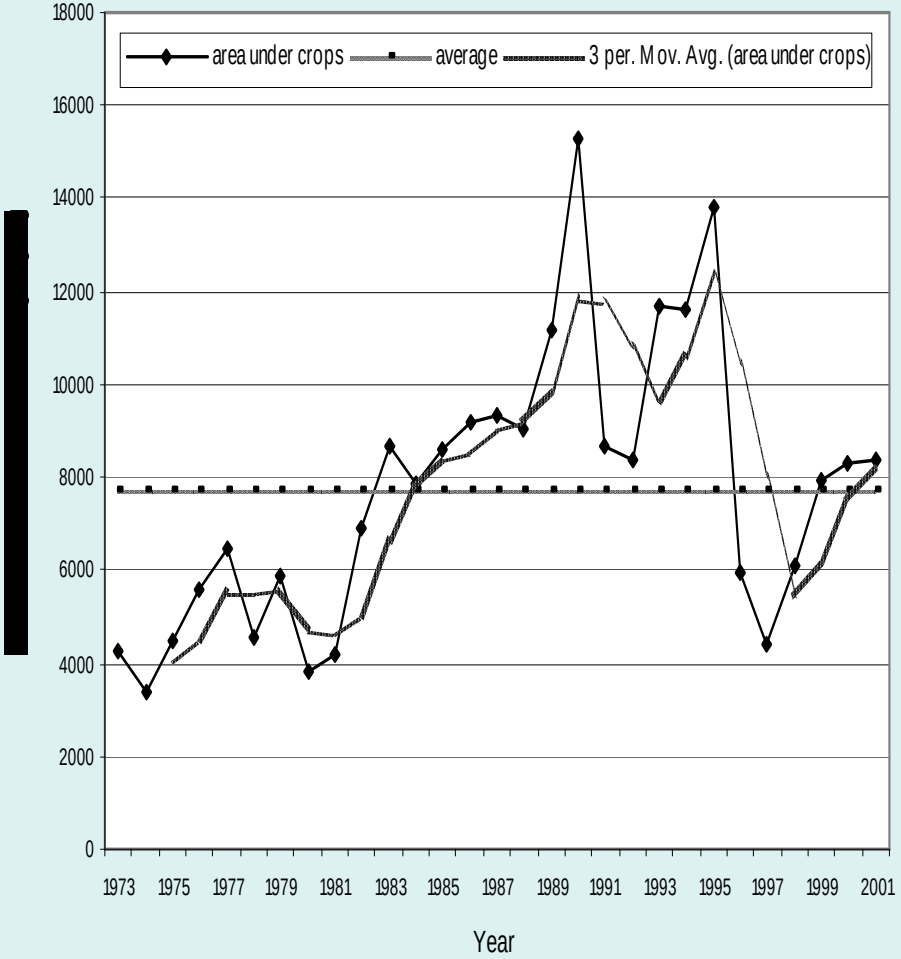
- To investigate the ecological and economic importance of mirraa growing around Marsabit Mountain in northern Kenya
- To explore issues related to mirraa trade in the region

Methods of research

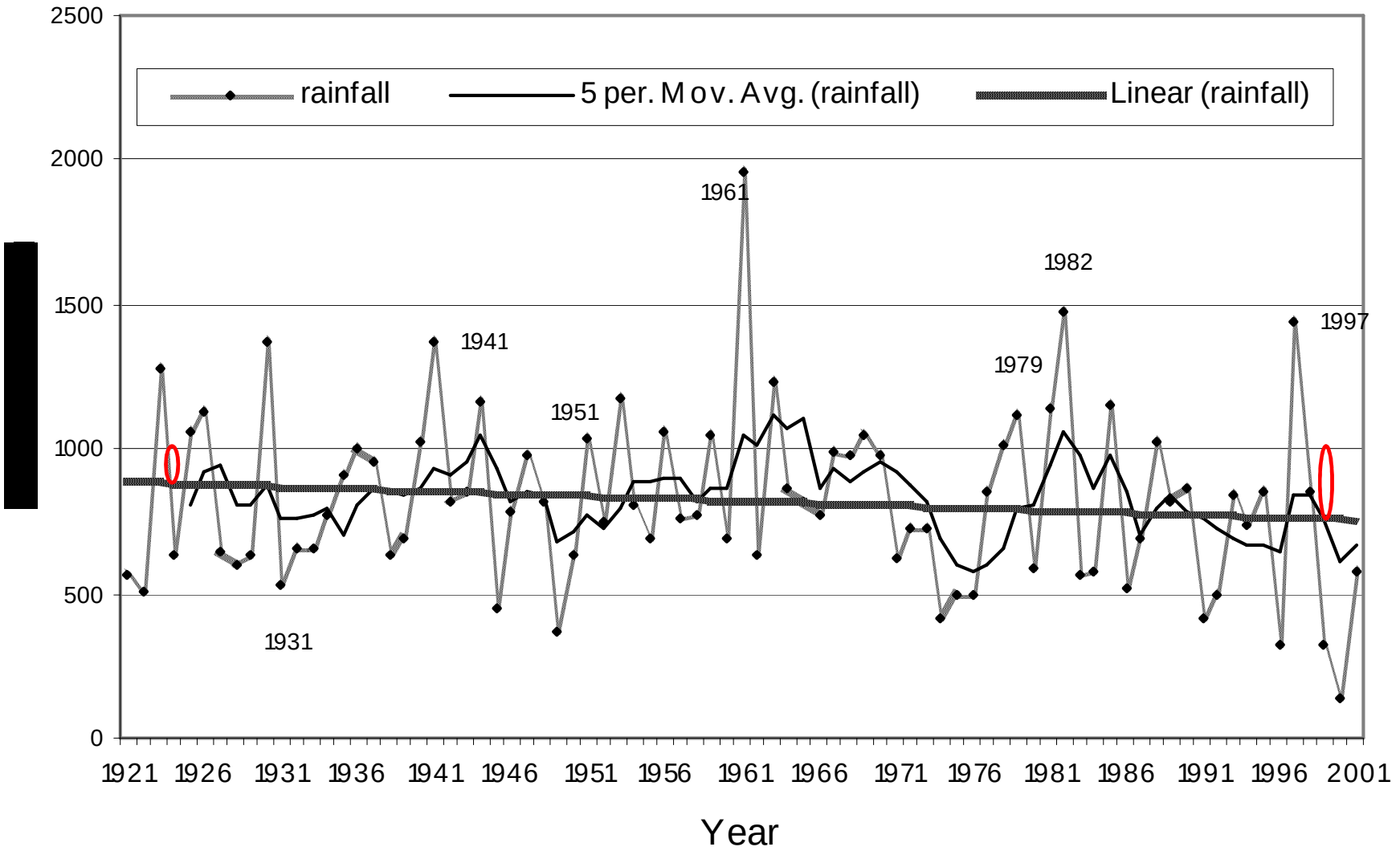
- The paper uses:
  - Secondary data
  - Annual reports of the Ministry of Agriculture, and
  - repeated surveys of over 200 households of mirraa growers

Trends in population and expansion of cultivated land on Marsabit Mountain



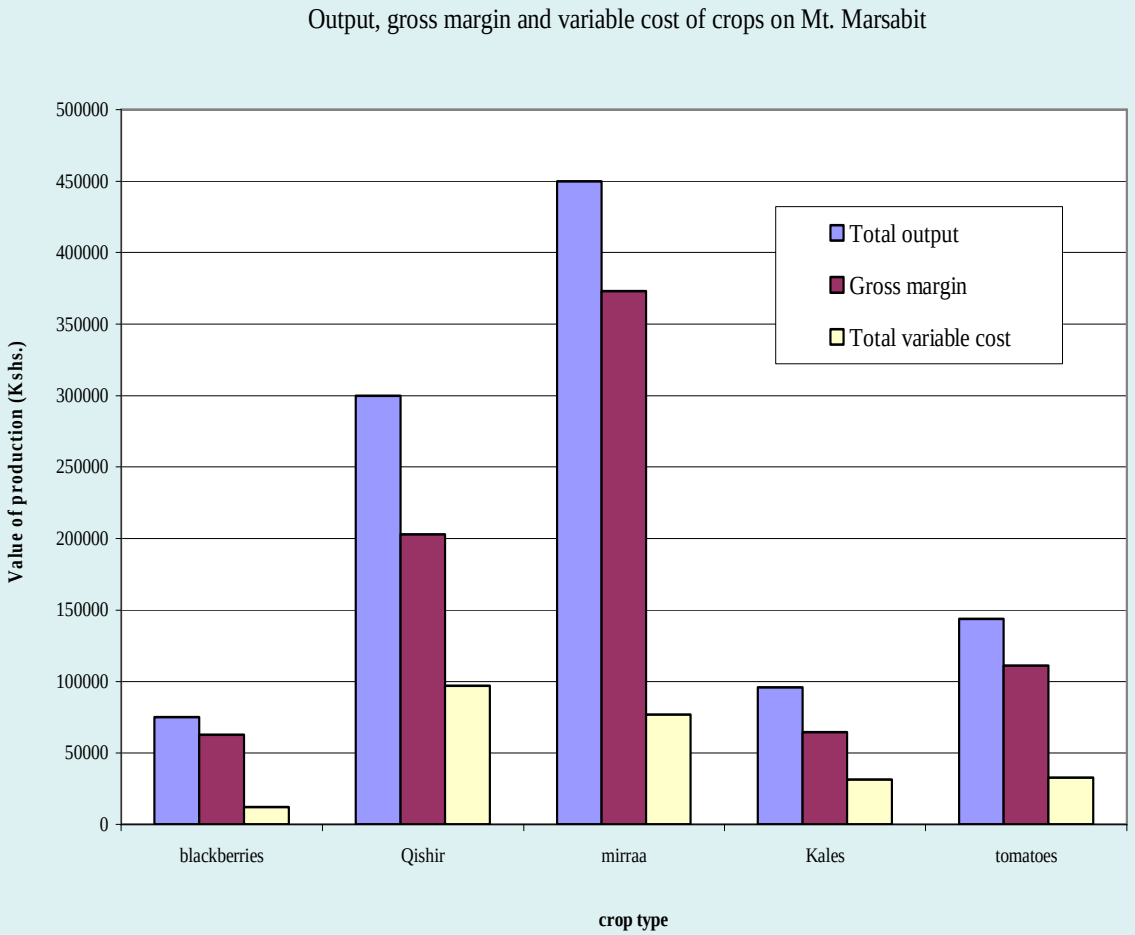


Trend in total annual rainfall in Mt. Marsabit



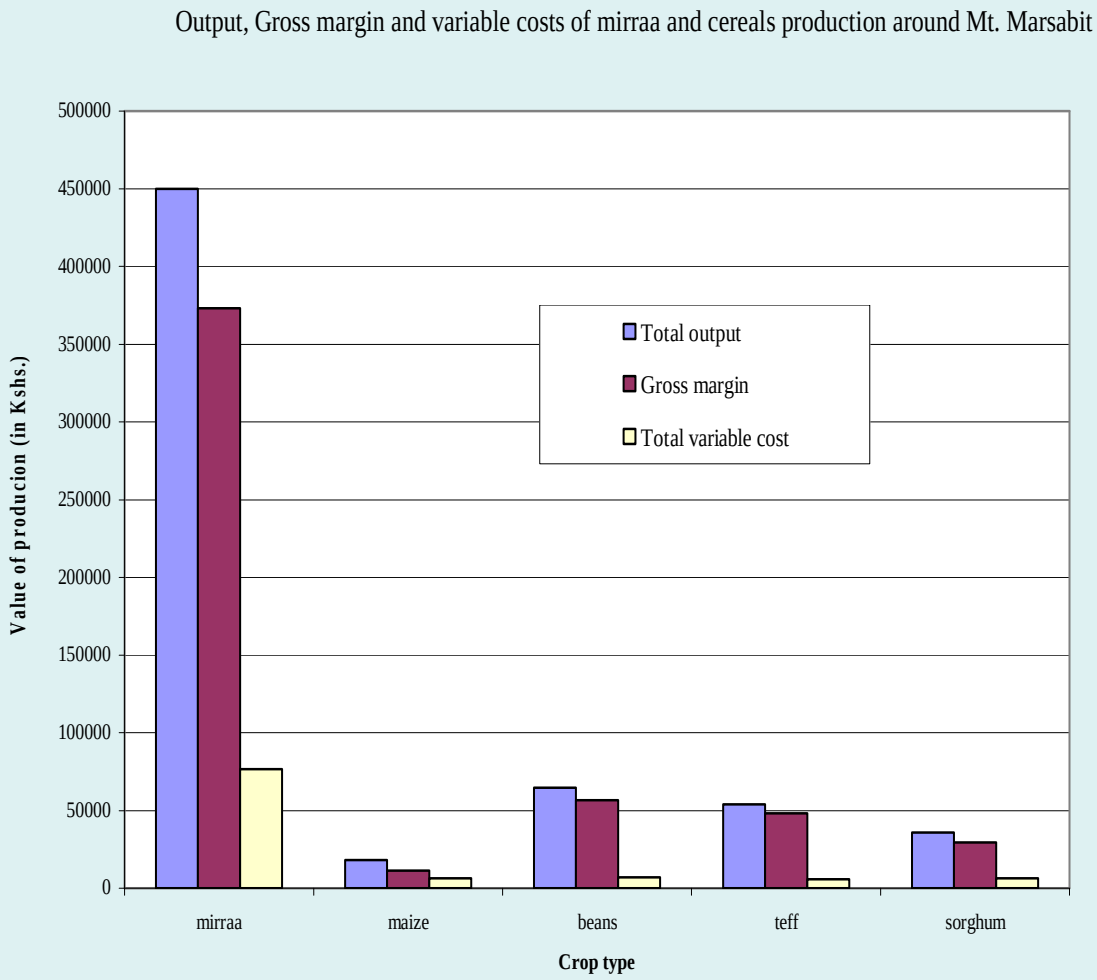
Output, gross margin and variable costs of horticultural crops production

- Mirraa and horticultural crops are gaining in importance on the mountain since the 1990s
- Gross margin of mirraa is almost four times higher than returns on horticultural



Output, gross margin and variable costs of mirraa and food crops production around Mt Marsabit

- Mirraa covers much smaller area than other crops, but has highest market value
- Returns on mirraa at least 7 times more than all other food crops

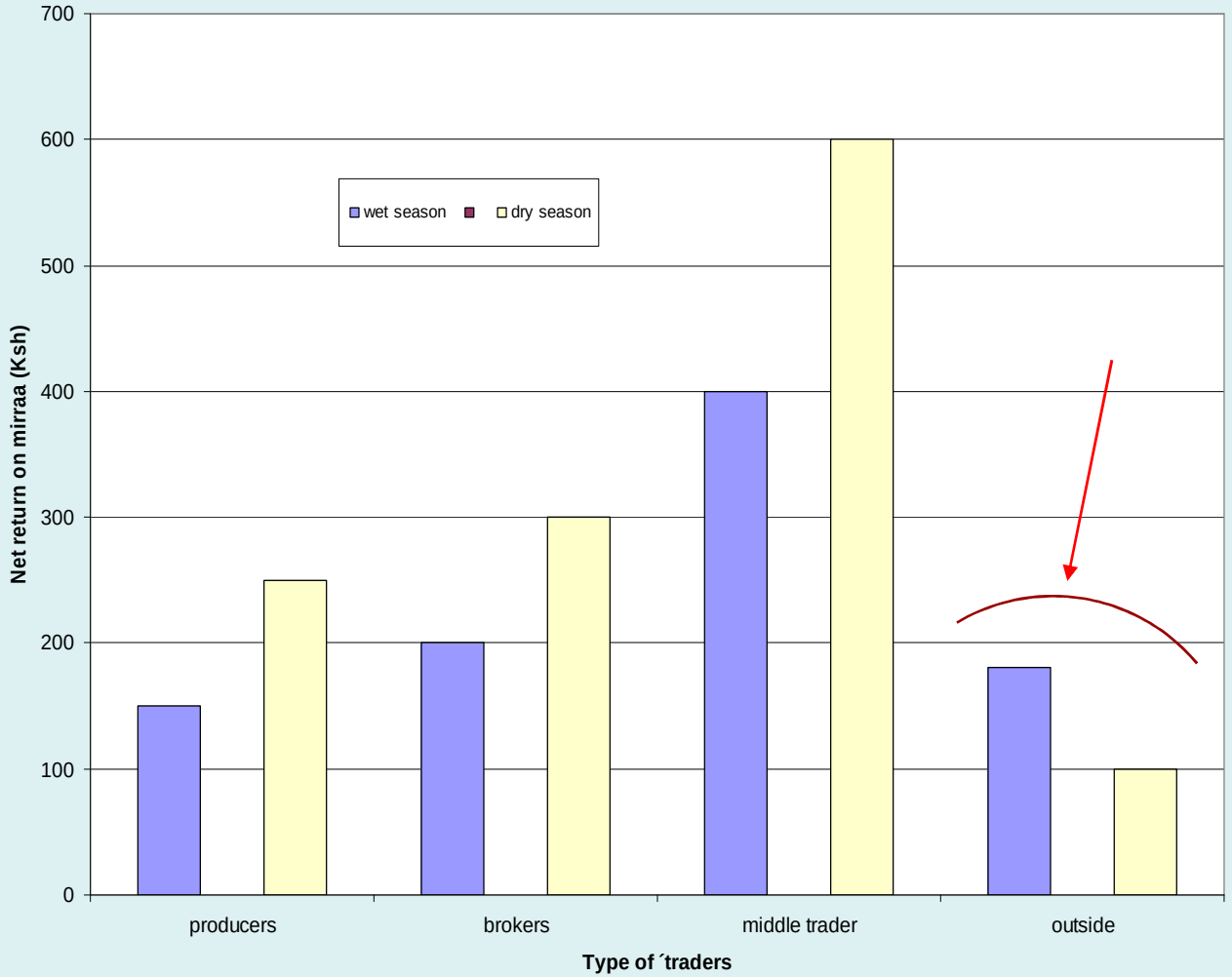


Requirements for growing mirraa

- Mirraa does not occupy much land compared to other crops
- It requires less water to grow on the mountain, and grows all year round
- It requires a high labour input (watered in the dry season) and chemicals

Trade and marketing of the leafy cash crop

Trading in locally produced mirraa is more paying than mirra ‘imported‘ from outside the region



Trade in the leafy cash crop

- Mirraa is a highly perishable commodity, but there is always ready market for the herb
- It generates a steady income, and also income from mirraa plantations is considerably high

Growing food insecurity on the mountain

- Over 70% of the population live on US$1 per day
- Evidence of decline in harvests of food crops
- Mirraa production undertaken in the wet zone
- Nutritional level among under 5 years of age remained over 20 percent, and growing
- Mirraa is a threat to food security has farmers have abandoned other crops to grow mirrraa
- Is mirraa a leaf of poverty or prosperity?

Consequences of growing mirraa

- Theft and insecurity
- Mirraa blamed for cases of cancer since 2006
  - excessive amount of arsenic minerals (cancer of certain internal organs) and chromium (throat cancer) in ground water
  - The prevalence of cancer attributed to the chewing of tobacco and mirraa

Use of pesticides on mirraa farms

- Potential health effects and risks associated with accidental application of pesticides
- Dimethoate 40 and Dudu thrin are the common pesticides used by farmers on the mountain against a broad range of insects
- Pesticide use:‘A pre-harvest interval of at least 14 days should be allowed following application of Dimethoate 40‘.

Effect of Dimethoate 40

- Dimethoate is moderately toxic by ingestion, inhalation and dermal absoption (WHO class II), and may cause serious poisoning
- Dimethoate may impair reproductive performance at high doses

Some concluding remarks

- Now most of the farmers have given up trying to grow maize in response to declining rainfall and turned to miraa as a new cash crop
- Mirraa production is more profitable than any other economic activity on the mountain (driver/incentive for production)
- Unintended effect of mirraa on users, environment and food production remain unclear (e.g. humanitarian help for food security)

Thank you