Crop species diversity in smallholder farms in Western Kenya and their contribution to food security

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Key messages

- During the pre- and post-harvest seasons, cereals & starchy roots were equally important in both districts, with slightly higher importance during the post-harvest season.
- Next to own production, markets & existing social networks are important household food sources in the study areas.

Results & discussions

- 62 different edible plant species were reported at T1, while 60 were represented at T2.
- Despite smaller farm sizes, Vihiga farms had consistently higher, or equal, SDRs of cereals and fruits (Fig.2).
- In both districts, the main food sources were own production and markets, but also family and friends for the food groups ‘roots/tubers’ and ‘fruits’ in Vihiga district (Table 1).

Background

- With promotion of simplified cropping systems, agrobiodiversity is under pressure to decrease.
- There is replacement of mixed farms with monoculture systems.
- Mixed farms represent a source of high agrobiodiversity that can be utilized to tackle food insecurity (Fig.1).

Research questions

(i) How does crop diversity on smallholder farms of different agro-ecological zones vary with seasonality?
(ii) Where do foods that are consumed within the surveyed households mainly come from?

Methodology

- All present plant and animal species grown/reared for food were documented and individuals counted on 30 purposively selected smallholder farms in six villages of Mumias and Vihiga districts, Western Kenya (M1).
- A Summed Dominance Ratio (SDR) was calculated using relative densities and relative frequencies for each of the edible plant species & summing up values per food category.

Smallholder farms, pre-harvest season (T1) Smallholder farms, post-harvest season (T2)

- Repeat of M1.
- Reporting of sources of food consumed for the last five times the household had eaten the product (the time span for the last five times ranged from 24 hours to a few months, depending on product & frequency of consumption).

Conclusions & recommendations

- Smallholder farmers utilize multiple channels to attain household food security.
- Different food procurement channels need equal consideration in extension, research and development.

Table 1: Food sources of households in Mumias and Vihiga districts at pre-harvest and post-harvest seasons, N = 15 per district

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