Agricultural production and use in Surkhet, Nepal

Crop, homestead, livestock, and fish cultivation and use

Data Note 47   December 2023

ABOUT THIS TAFSSA DATA NOTE

The TAFSSA district food systems assessment aims to provide a reliable, accessible and integrated evidence base that links farm production, market access, dietary patterns, climate risk responses, and natural resource management in Bangladesh, India, and Nepal. It is intended to be a multi-year assessment. This data note summarizes data collected in March- April 2023 to describe what smallholder farmers are cultivating and what they do with the farm products produced. It is part of a pack of data notes that, together, provide a holistic picture of the food system in the district. The survey methodology is briefly summarized in the penultimate page of this data note.

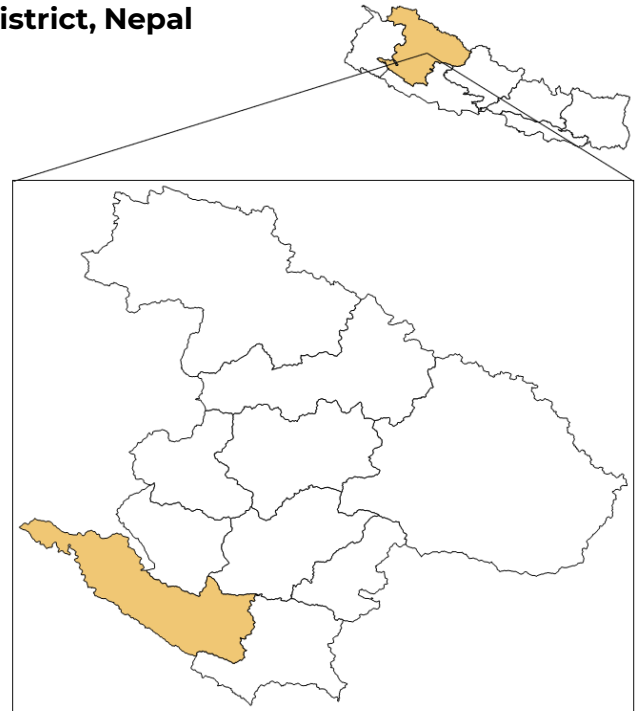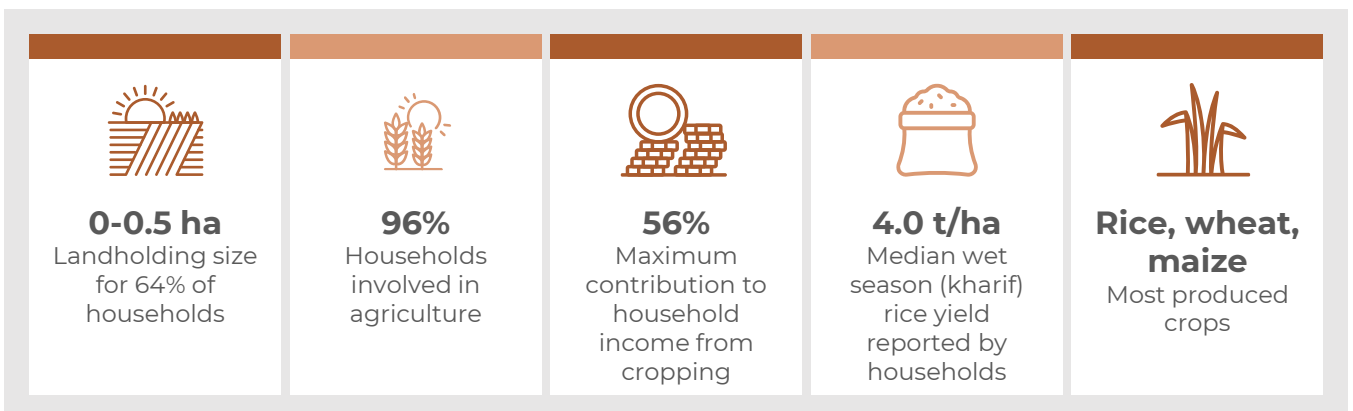**Figure 1. Research location in Surkhet District, Nepal**

Figure 2. Highlights from this data note

0-0.5 ha
Landholding size for 64% of households

96%
Households involved in agriculture

56%
Maximum contribution to household income from cropping

4.0 t/ha
Median wet season (kharif) rice yield reported by households

Rice, wheat, maize
Most produced crops

AGRICULTURAL PRODUCTION DATA NOTE OVERVIEW

This data note summarizes information provided by households in Surkhet District in Nepal. It starts with a general overview of agricultural productivity, followed by more detailed information on crop production, the use and sale of crops, livestock and livestock-derived food production, and the use and sale of animals and animal products. Finally, information is provided on households' production of "sentinel foods". These are 25 commonly consumed foods or food groups whose production and consumption are being tracked across the TAFSSA Initiative's learning landscapes throughout South Asia.

Households have been categorized into three groups based on landholding size. Of the surveyed households, 21% own no land and are referred to here as "Landless," and 64% of surveyed households own between 0 and 0.5 hectares and are considered "Smaller Landholders." The remaining 15% of surveyed households own more than 0.5 hectares, and are termed "Larger Landholders."

Table 1. Key characteristics of each household group

Household group	Land-holding size	Proportion of total households	Proportion engaged in agriculture	Proportion owning land	Proportion where women own land
Landless	0 ha	21%	17.2%	0.0%	7.2%
Smaller Landholders	0-0.5 ha	64%	63.4%	100.0%	19.4%
Larger Landholders	> 0.5 ha	15%	15.2%	100.0%	4.4%
Total	n/a	100%	96.0%	80.0%	31.0%

✓ Around 90% of households with land produce cereals & tubers. The majority of these households also produce ruminants (at least 59.2%) and poultry (at least 76.0%).

✓ Larger Landholder households produce more crops of each type than Landless or Smaller Landholders, except for cereals & tubers and vegetables. A quarter of Larger Landholder households (23.4%) also produce pigs.

✓ More Landless households (46.1%) produce poultry than those producing cereals, tubers, or small ruminants (both 26.5 %).

Figure 3. Crop production and livestock ownership in each household group
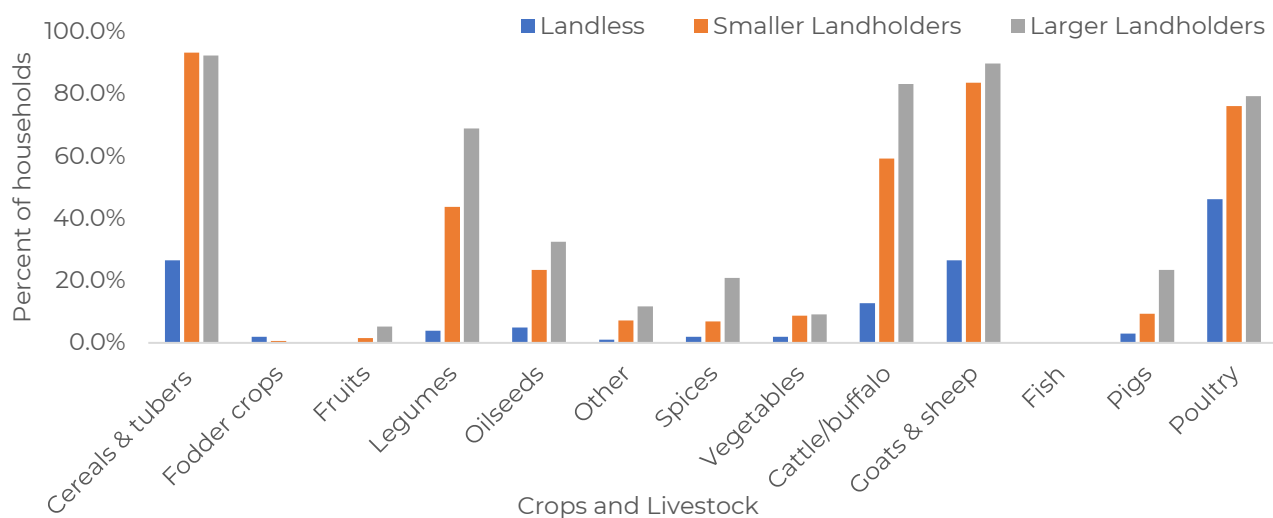
HOUSEHOLD INCOME SOURCES

✓ Crop cultivation is the primary income source for half (51.9%) of Larger Landholder households.

✓ Crop cultivation is the secondary income source for 49.2% of Smaller Landholder households and 24.5% of Landless households.

✓ Off-farm earnings are the primary income source for 31.5% of Smaller Landholder households and 63.7% of Landless households surveyed.

✓ Animal production is a secondary source of income for 6.9% of Landless households, 15.0% of Smaller Landholder households, and 20.8% of Larger Landholder households

Figure 4. Primary and secondary sources of income in each household group
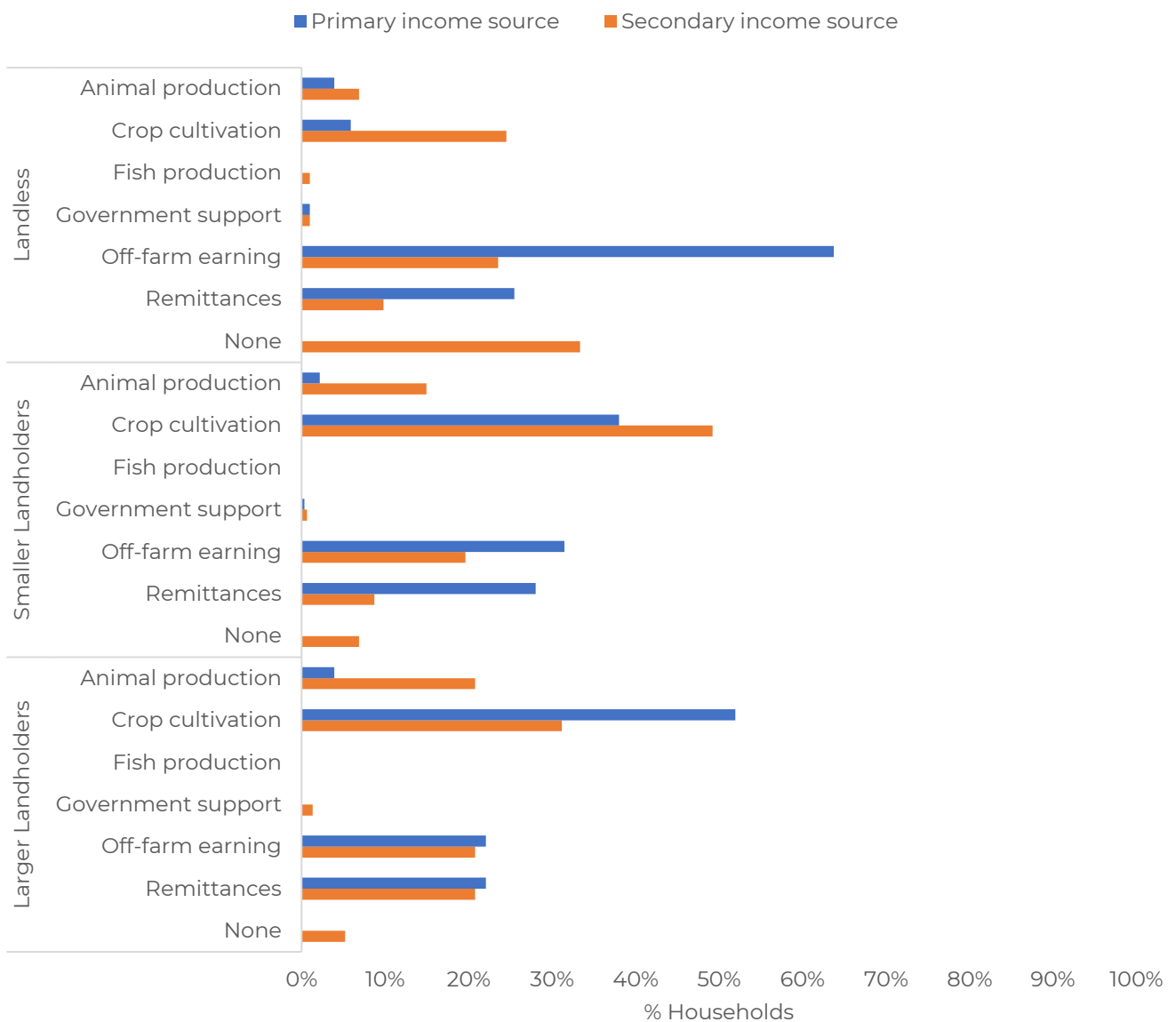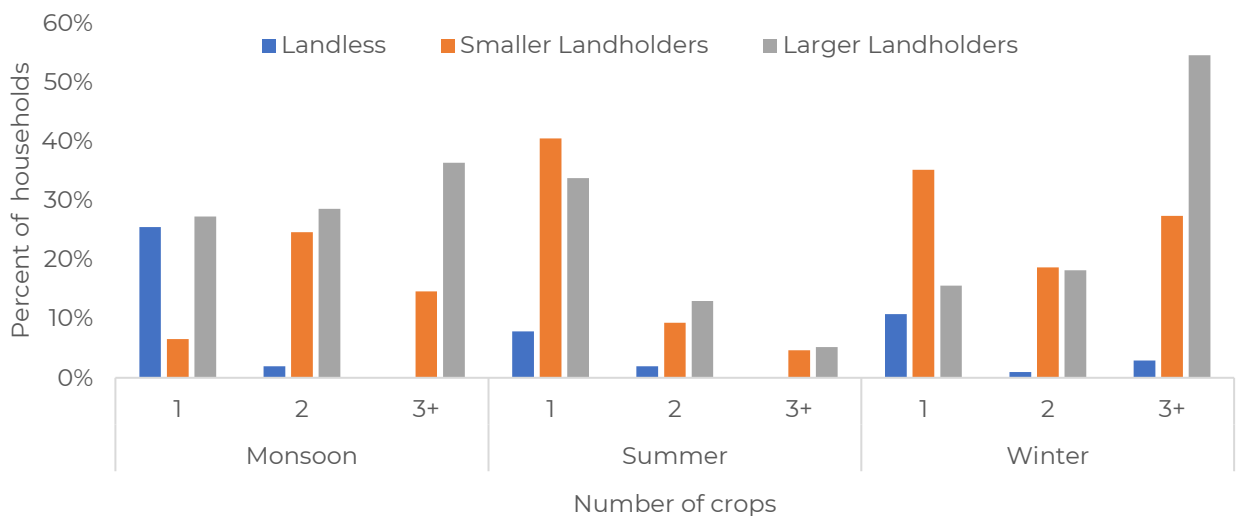
CROP PRODUCTION

Figure 5. Production of major crops by each household group
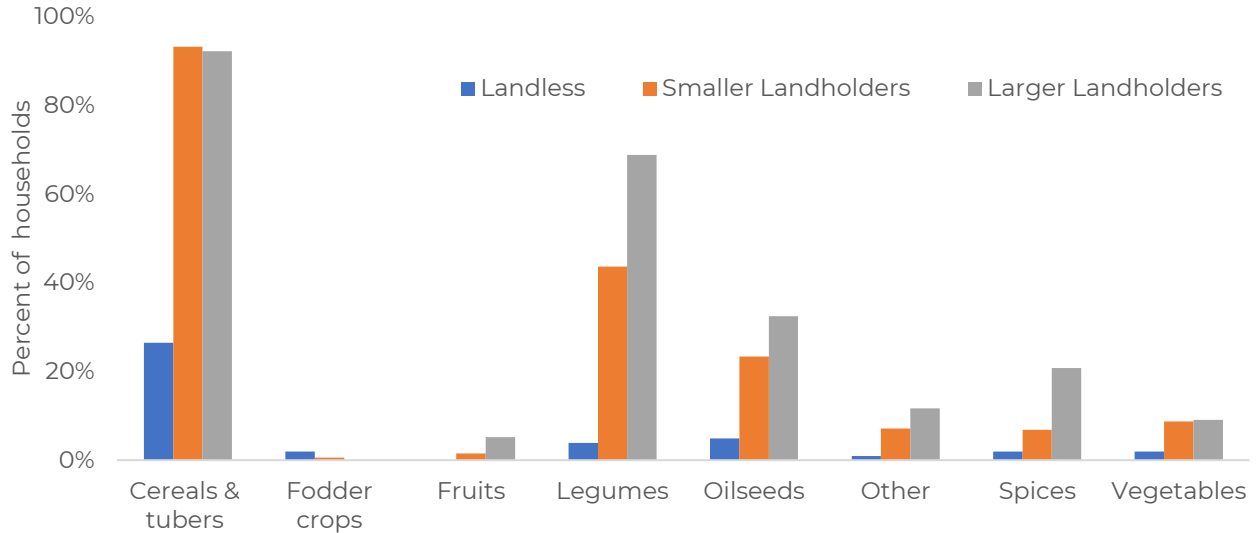

- ✓ Cereals (primarily rice, maize, wheat) and tubers (potatoes) are the most widely produced crops across all household groups surveyed.
- ✓ Households with land produce more crop products in each category than Landless households.
- ✓ Crop diversification is lowest in the hot and dry summer season and higher in the cooler winter (rabi) season.
- ✓ In the monsoon (kharif) season, crops are likely to be rainfed, and rice, which is water-intensive, more likely to be grown for home consumption by half of more households with land.
- ✓ Larger Landholder households are more likely than other household groups to grow a greater number of crops in the dry winter season, which suggests access to water resources (irrigation) to facilitate crop growth.

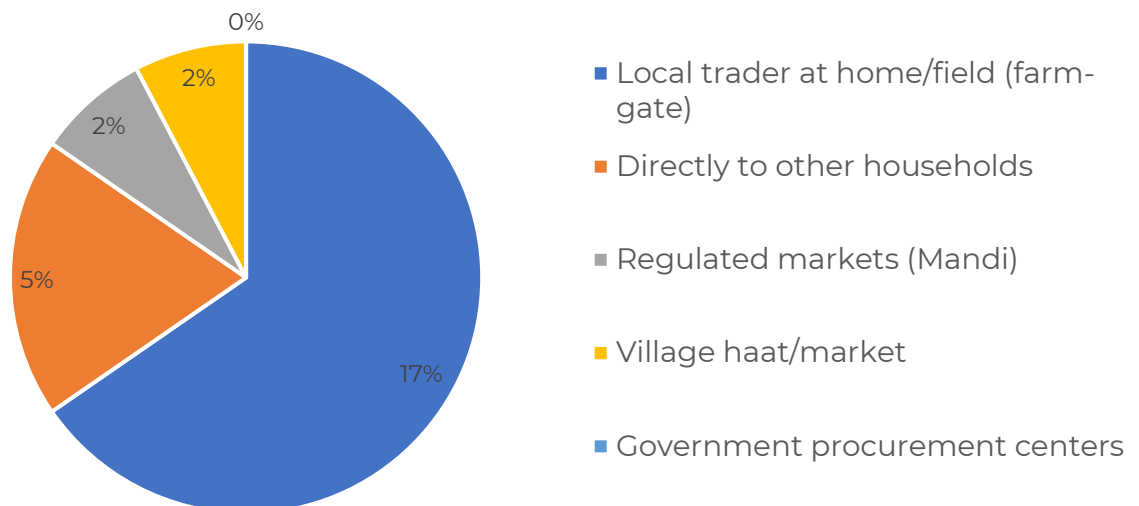## Figure 6. Number of crops grown each season by each household group

PRODUCTION AND SALE OF CROP PRODUCTS

Figure 7. Average annual per-household production and sale of major crop products, for households which sell crop products
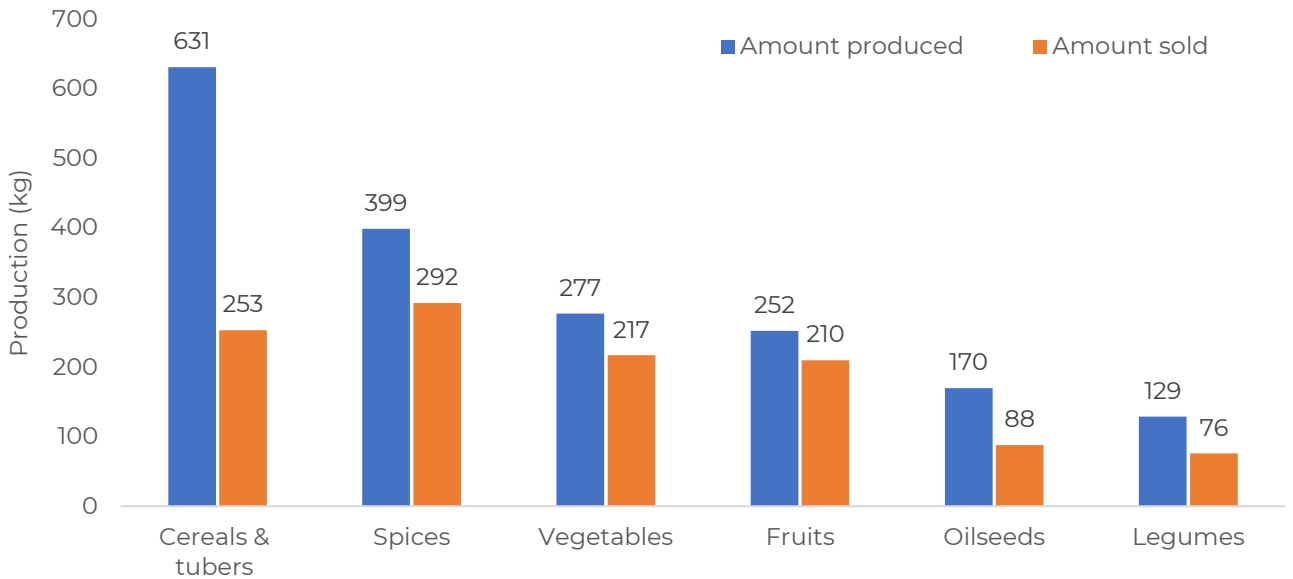

- ✓ Households sell proportionally more fruits (83.3% of the amount produced), vegetables (78.3%), and spices (73.2%) than other crop types.
- ✓ Proportionally higher amounts of cereals & tubers (59.9%), oilseeds (48.2%), and legumes (41.4%) are retained for home consumption.
- ✓ Most households (79.6%) do not sell their farm products, regardless of farm size (data not shown).
- ✓ When farm products are sold, 17% of households surveyed reported they sell to traders at the farmgate and 5% of households that they sell directly to other households.

Figure 8. Places where households sell farm products

- Local trader at home/field (farm-gate)
- Directly to other households
- Regulated markets (Mandi)
- Village haat/market
- Government procurement centers

PRODUCTION OF LIVESTOCK AND LIVESTOCK-DERIVED FOODS

## Figure 9. Livestock rearing in each household group
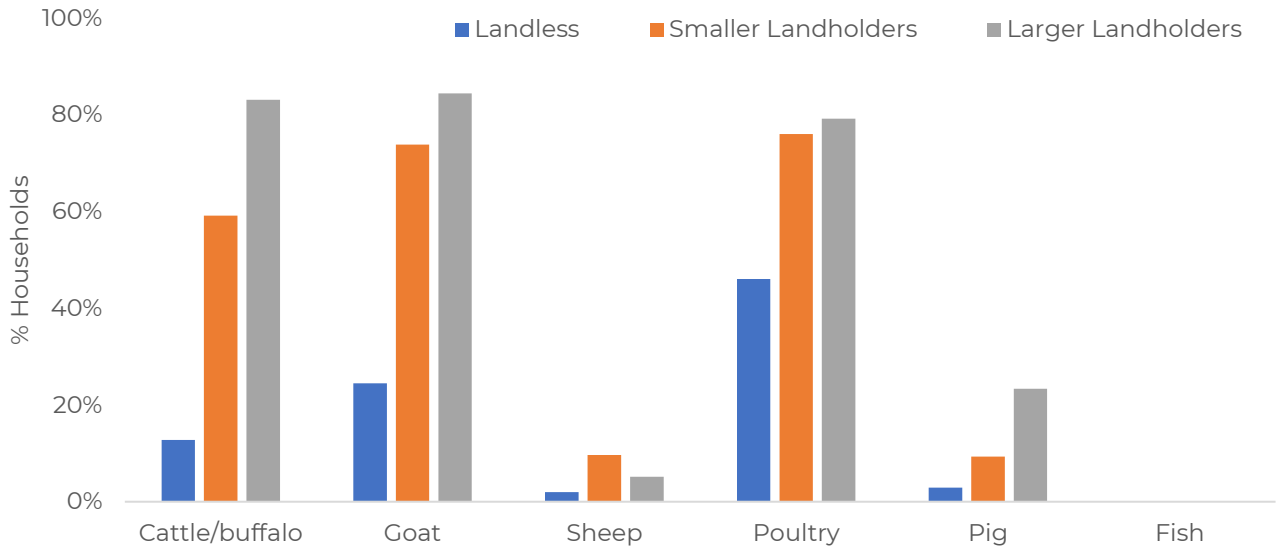
- ✓ Livestock ownership is higher for households with land than in Landless households, and higher for Larger Landholder households than for Smaller Landholder households. This is particularly the case for ruminant animals and pigs, which require more space for stalls and rearing than for poultry.

- ✓ Poultry is reared by at least 46.1% of all household groups. More Landless households report they rear poultry than cattle/buffalo or goats.

- ✓ Daily average milk production is highest in Landless households, although absolute livestock ownership is low for this group. This may reflect different uses land owning households have for livestock, such as animal traction for field preparation or production for meat.

- ✓ All households produce similar quantities of eggs each day.

## Figure 10. Milk and egg production in each household group
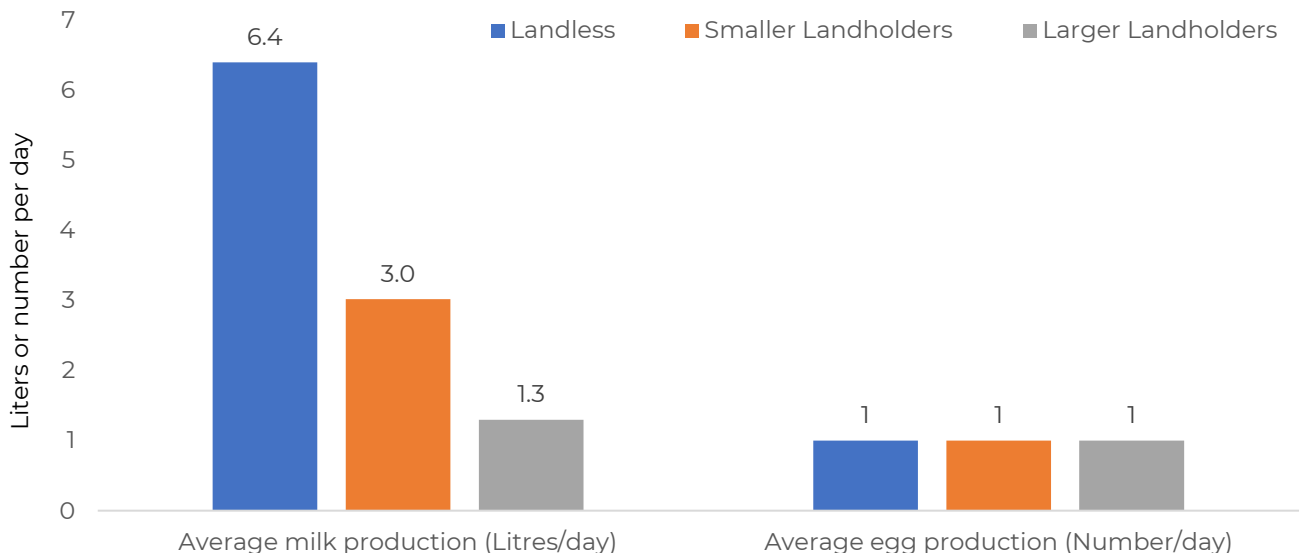
USE AND SALE OF LIVESTOCK PRODUCTS

Figure 11. Households producing, selling or retaining livestock products
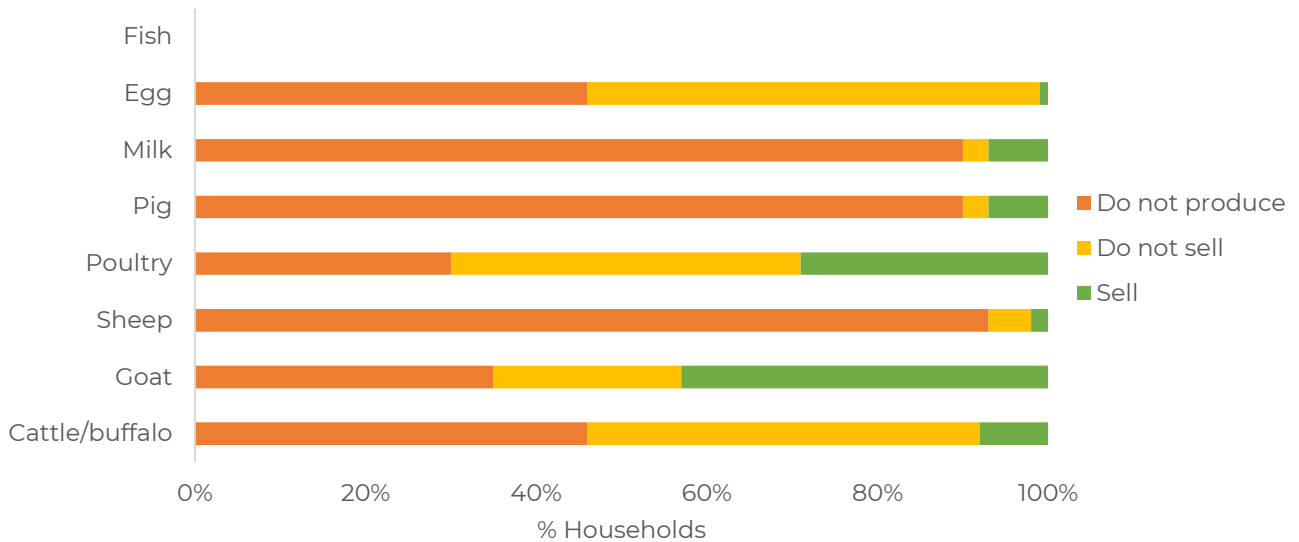
- ✓ Poultry, goats, eggs, and cattle/buffalo are the most commonly produced animal products, produced by 70%, 65%, 54%, and 54% of households, respectively.
- ✓ Most households that produce poultry, cattle/buffalo, and eggs consume more than they sell of these products.
- ✓ Twice as many households sell goat products (43.0%) than consume these products within the household (22.0%).
- ✓ No households produce fish products.
- ✓ Farm gate prices are higher per head for cattle/buffalo than for pigs or small ruminants.
- ✓ Poultry prices are low, and many flocks may be self-replicating.

Figure 12. Average farmgate livestock prices
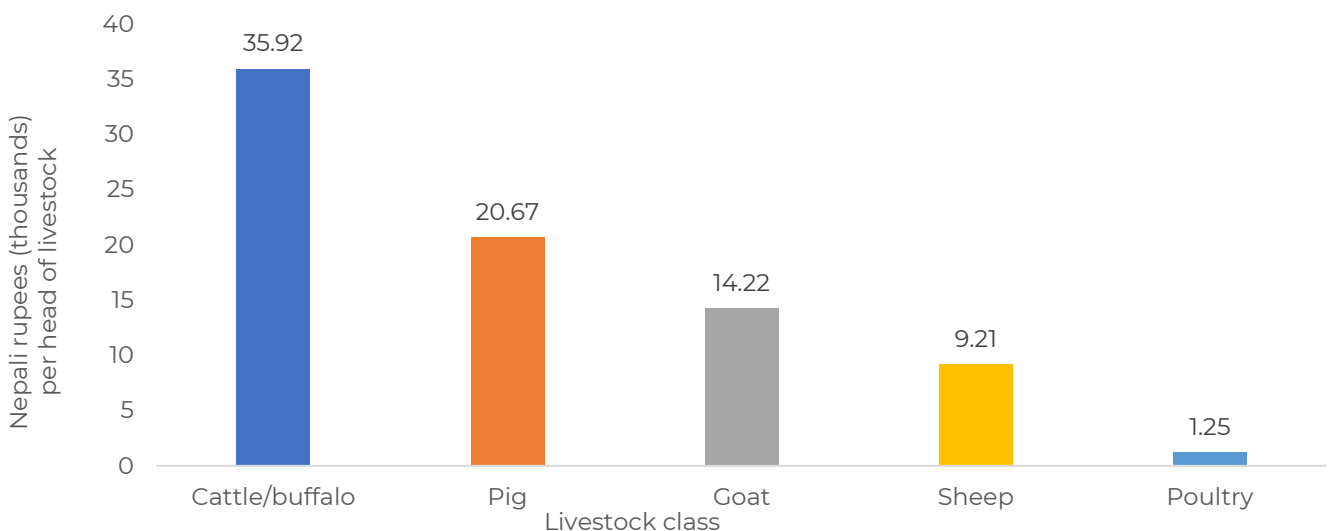
PRODUCTION AND SOURCES OF SENTINEL FOODS[1]

Figure 13. Annual production of sentinel food crops by each household group
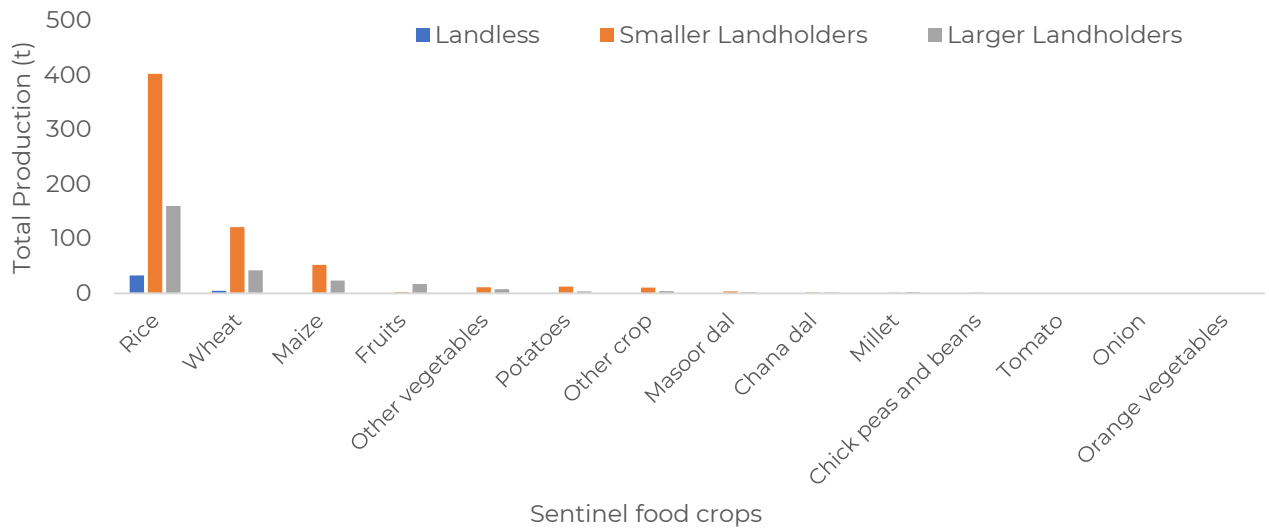
✓ Across all household groups few non-cereal sentinel crops are produced.

✓ More sentinel cereal crops are produced, in absolute terms, by the group of Smaller Landholder households than by the surveyed groups of Larger Landholder or Landless households.

✓ In Smaller and Larger Landholder groups, most households (at least 85%) use both the farm and the homestead to produce sentinel foods.

✓ For the Landless group, most households (81%) use their homesteads or homestead garden areas to produce sentinel foods, and 26% produce these foods in farm fields.

Figure 14. Where household groups produce sentinel foods
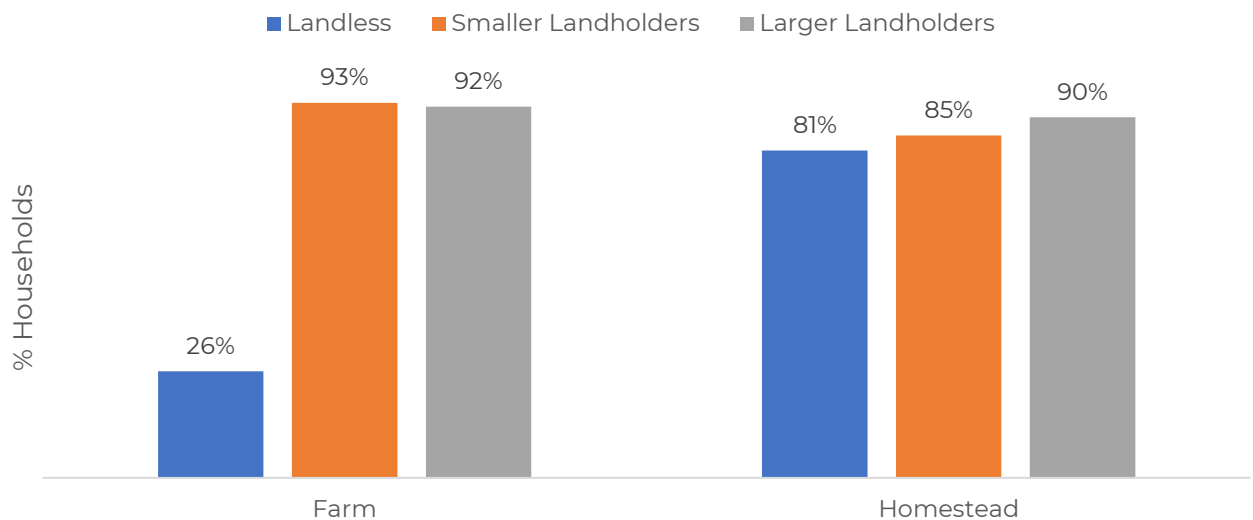
[1] The 25 sentinel foods/food groups monitored in TAFSSA's learning landscapes are: rice; wheat; maize; millets; moong dal; masoor dal; chana dal; chickpeas and beans; potato; poultry; fish; other meat; eggs; milk; orange vegetables; green leafy vegetables; onions; tomatoes; fruits; instant noodles; chips, biscuits and baked sweets; deep fried food; soda, soft drinks and packaged juices; and tea or coffee with sugar.

SEASONALITY OF FOOD AND OTHER CROPS

Figure 15. Food and other crops produced each season in farm fields

- ✓ Two-thirds (67.8%) of households grow rice and 35.0% of households grow maize in farm fields in the monsoon (kharif) season. Rice is usually grown in standing water and can be grown in the monsoon season with little irrigation.

- ✓ Up to 57.6% of households grow wheat in their farm fields during the winter (rabi) season. Up to 22.4% of households grow legumes and mustard in the winter season, with smaller numbers of households (less than 10%) growing vegetables or other carbohydrate-rich crops (maize, potato, rice) in their farm fields during this season.

- ✓ 33.8% of households grow maize in the summer season in farm fields, with 10% or fewer households growing wheat, rice, legume and vegetable crops.

- ✓ A small number of households grow up to 11 varieties of vegetables and 2 varieties of fruits in their farm fields across all seasons.

- ✓ Crop choice is likely to be determined by agronomic and household preferences.

WHERE FOOD AND OTHER CROPS ARE GROWN

Figure 16. Where food and other crops are produced

- ✓ Up to 69.2% of surveyed households grow rice, wheat, maize, legume, oilseed, vegetable and fruit crops.

- ✓ 71.8% or fewer households grow vegetables in the homestead, and 38.4% of households also produce potatoes here, with 12.8% growing maize.

- ✓ 10.8% or fewer households grow fruit in orchards.

- ✓ The production of fruit and other high-value crops by many households in the homestead, rather than in a separate orchard or farm field may reflect the small amount of arable land available to most households, and their preference to grow more valuable crops closer to family dwellings.

KEY TAKEAWAYS

1. Most households (96%) identify as engaging in agriculture, with the majority (64%) owning between 0 and 0.5 ha land.

2. Households consume most of what they grow on their farms.

3. Rice and wheat are the most produced food crops.

4. Diversity in the number of crops grown is higher in the winter (rabi) and monsoon (kharif) seasons and lower in the summer season.

5. Poultry and ruminants are produced by over half of the surveyed households. Most households producing poultry, milk and eggs use these products for home consumption, while most households producing goats sell them.

6. Better-endowed households sell more farm products than other households. Of the products sold, most are bought by middlemen at the farmgate. Crops and livestock are both sources of income.

KEY QUESTIONS FOR ACTION

1. What are the key barriers to improving farming system productivity in the district?

2. What are potential solutions to overcoming these barriers? What is needed from decision-makers and from program teams to implement these solutions?

3. How can women and men farmers be supported and enabled by decision-makers and program teams?

4. How can more marginal farmers be supported to increase their productivity?

SURVEY METHODOLOGY

Village and household sampling
We selected 25 wards in the district with a probability proportional to the number of households living in each village. Within each village we conducted a household listing to identify eligible households, i.e. those with adolescents (10-19 years old). From the households with adolescents we randomly invited 20 households to participate in the survey. If a household refused we replaced that household with another randomly selected eligible household to retain a total of 500 households in the district. Thus the findings reported in this data note are representative of rural households from this district which include an adolescent.

Respondent selection
Within households one adult female aged 20+ years, one adult male aged 20+ years, and one adolescent aged 10-19 years were selected as the respondents for the survey. When multiple adolescents were living in a household the oldest adolescent was selected. In some households an adult male was not available (often due to migration for work). In such households the female was the only adult respondent. At the beginning of the interview the adult in the household primarily involved in agriculture (either male or female) and the adult primarily responsible for food purchasing (either male or female) were identified as the primary respondents.

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SUGGESTED CITATION

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ABOUT TAFSSA

TAFSSA (Transforming Agrifood Systems in South Asia) is a CGIAR Regional Integrated Initiative that supports actions improving equitable access to sustainable healthy diets, that boosts farmers' livelihoods and resilience, and that conserves land, air, and water resources in a climate crisis.

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