

Agricultural production and use in Rajshahi, Bangladesh

*Crop, homestead, livestock, and
fish cultivation & use*

Data Note 45

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 February-March 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 Rajshahi District, Bangladesh**

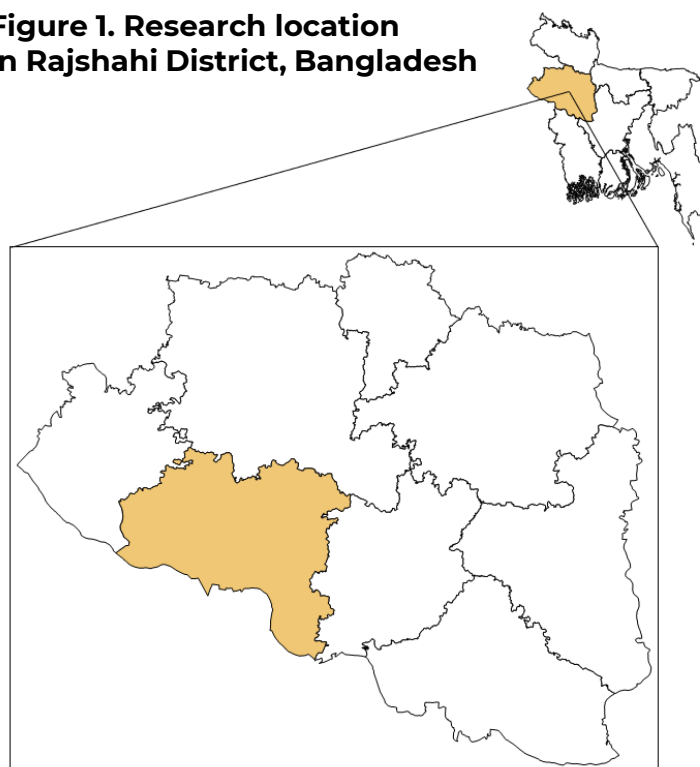


Figure 2. Highlights from this data note



0-0.5 ha

Landholding size
for 46 % of
households



91%

Households
involved in
agriculture



87%

Maximum
contribution to
household
income from
cropping



5.2 t/ha

Median wet
season (kharif II)
rice yield
reported by
households



Rice

Most produced
crop

AGRICULTURAL PRODUCTION DATA NOTE OVERVIEW

This data note summarizes information provided by households in Rajshahi District in Bangladesh. 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," i.e. 25 commonly consumed foods or food groups whose production and consumption are being tracked across the TAFSSA Initiative's learning landscapes throughout South Asia.

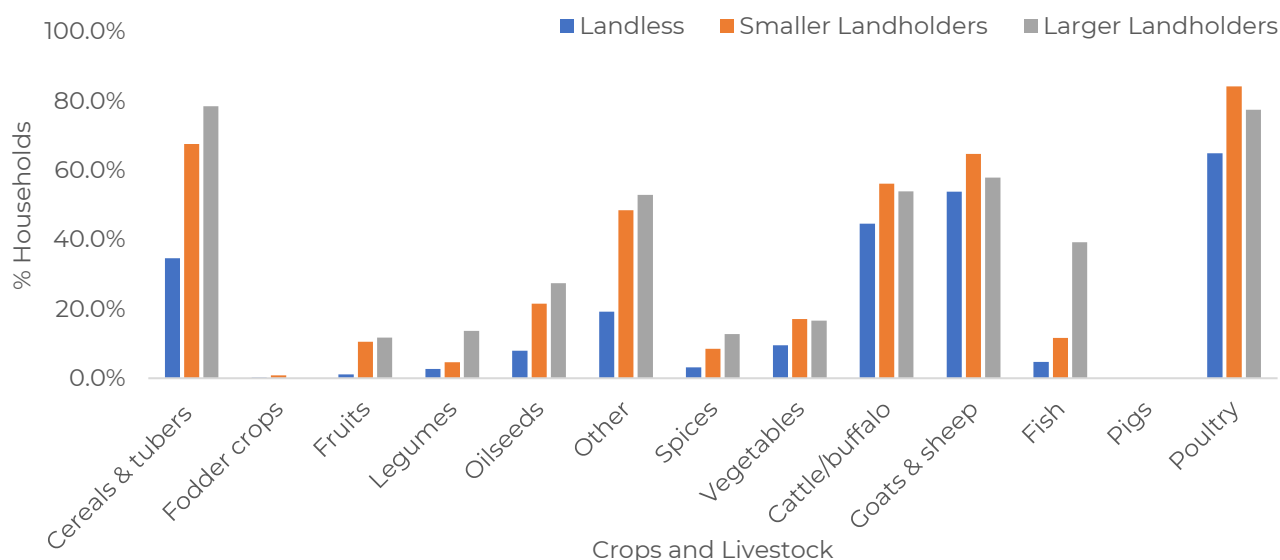
Households have been categorized into three groups based on landholding size. 44 % of households own no land and are referred to here as "Landless," while the 10 % of respondent households owning more than 0.5 hectares are "Larger Landholders." 46 % of households surveyed own between 0 and 0.5 hectares and are referred to as "Smaller Landholders."

Table 1. Key characteristics of each household group

Household group	Landholding size	Proportion of total households	Proportion engaged in agriculture	Proportion owning land	Proportion where women own land
Landless	0 ha	44 %	36.7 %	0.0 %	5.6 %
Smaller Landholders	0-0.5 ha	46 %	44.5 %	100.0 %	10.7 %
Larger Landholders	> 0.5 ha	10 %	9.7 %	100.0 %	3 %
Total	n/a	100 %	90.9 %	56.0 %	19.3 %

- ✓ At least two-thirds of households with land produce cereals & tubers. The majority of these households (at least 53.9%) also produce ruminants and poultry.
- ✓ Larger Landholders produce more crops of each type than Landless or Smaller Landholders. 39% of Larger Landholders also produce fish.
- ✓ More Landless households rear cattle/buffalo, small ruminants and poultry than produce crops. About a third of Landless households grow cereal and tuber crops.

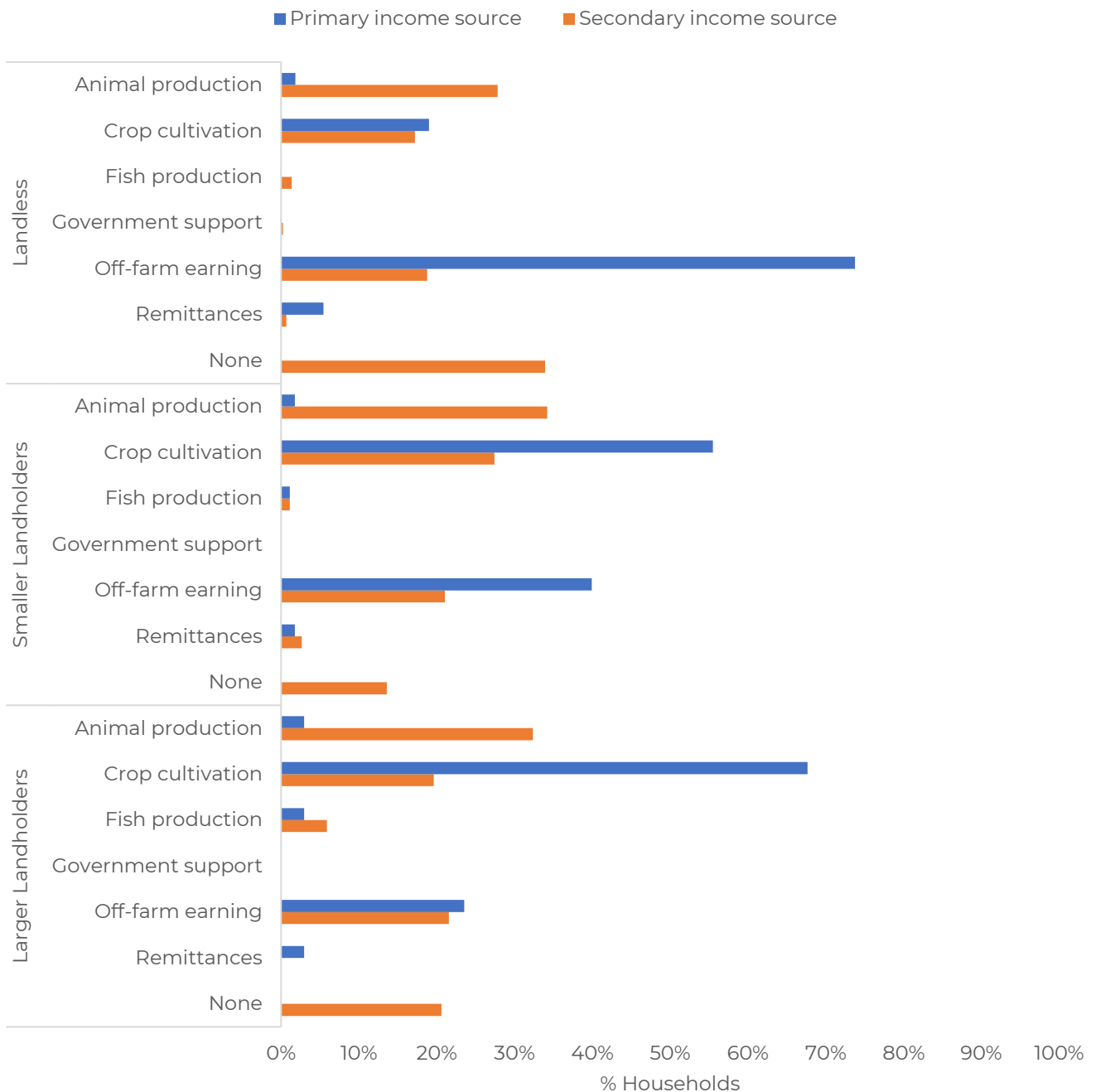
Figure 3. Crop production and livestock ownership in each household group



HOUSEHOLD INCOME SOURCES

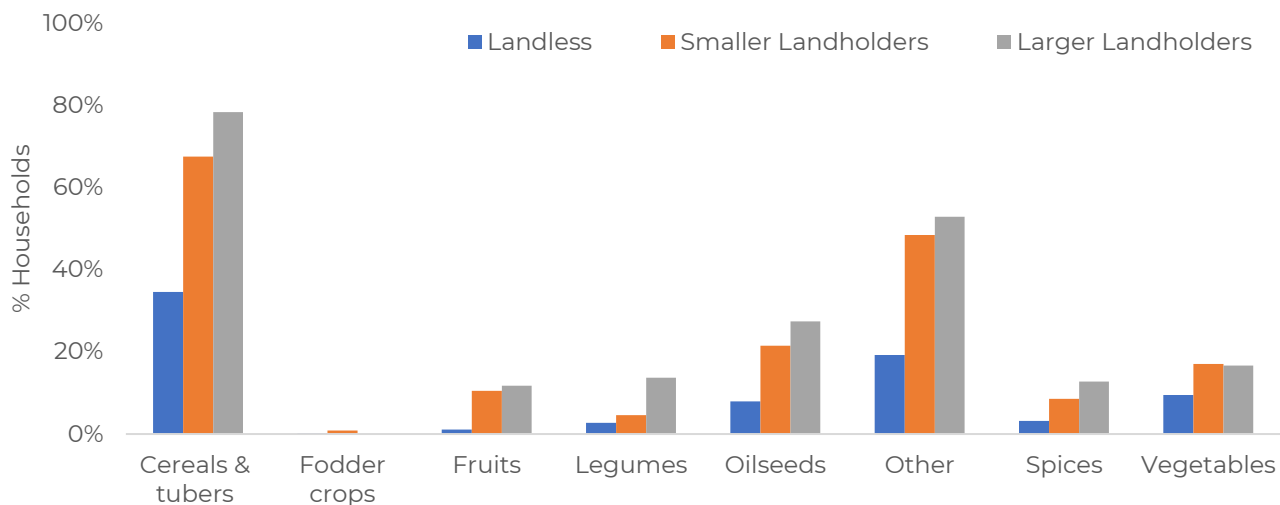
- ✓ Crop cultivation is the primary income source for 67.6% of Larger Landholder households and 55.5% of Smaller Landholder households.
- ✓ For Landless households off-farm earnings are the primary income source for 73.8% of households
- ✓ Animal production is a key secondary source of income for 27.8% of Landless households, 34.2% of Smaller Landholder households, and 32.4% of Larger Landholder households.

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



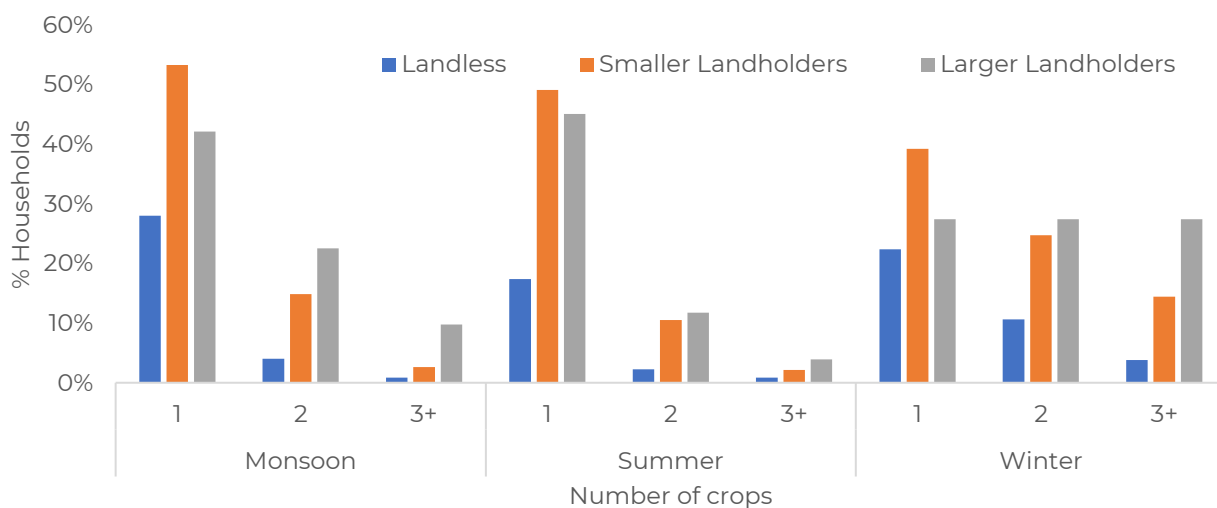
CROP PRODUCTION

Figure 5. Production of major crops by each household group



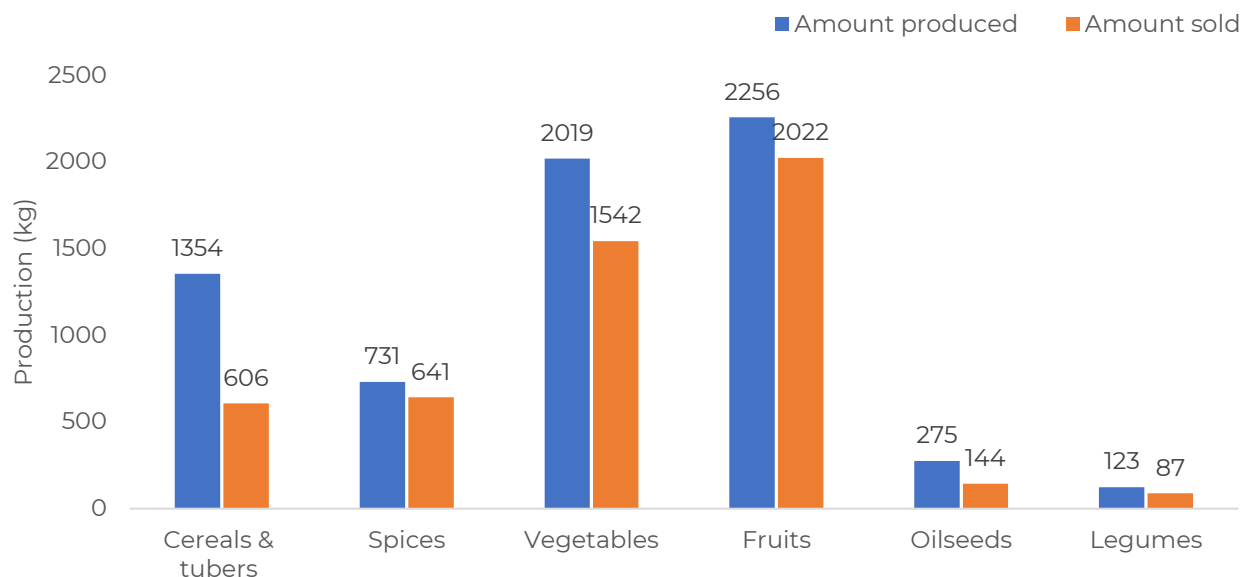
- ✓ Cereals (primarily rice) and tubers (potatoes) are the most widely produced crops. Around 50% of households with land also produce “Other” crops, predominantly cash crops such as jute, sugarcane and betel leaf.
- ✓ More Larger Landholder households produce crop products in each category except fruits and vegetables, which are produced by about equal numbers of Smaller and Larger Landholder households.
- ✓ Many households grow one crop in the monsoon (kharif II) season, which is when water-intensive rice is most likely to be produced, reducing irrigation requirements.
- ✓ In the relatively hot and dry summer (kharif I) season about half of households with land grow one crop, which is likely to require irrigation
- ✓ About a third of Larger Landholder households grow one, two, or three or more crops in the winter (rabi) season. Smaller Landholder and Landless households are more likely to grow fewer crops.

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



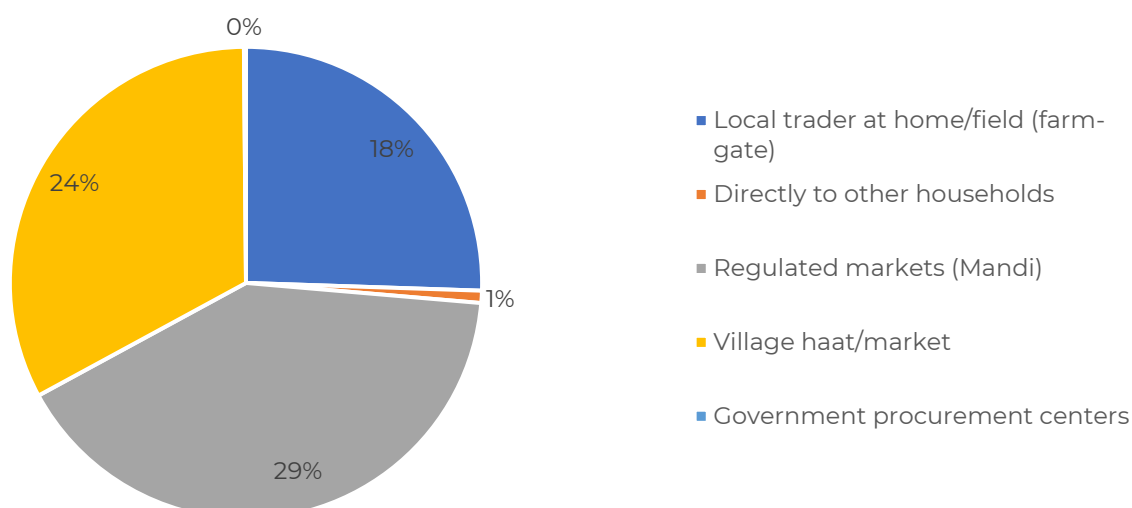
PRODUCTION AND SALE OF CROP PRODUCTS

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



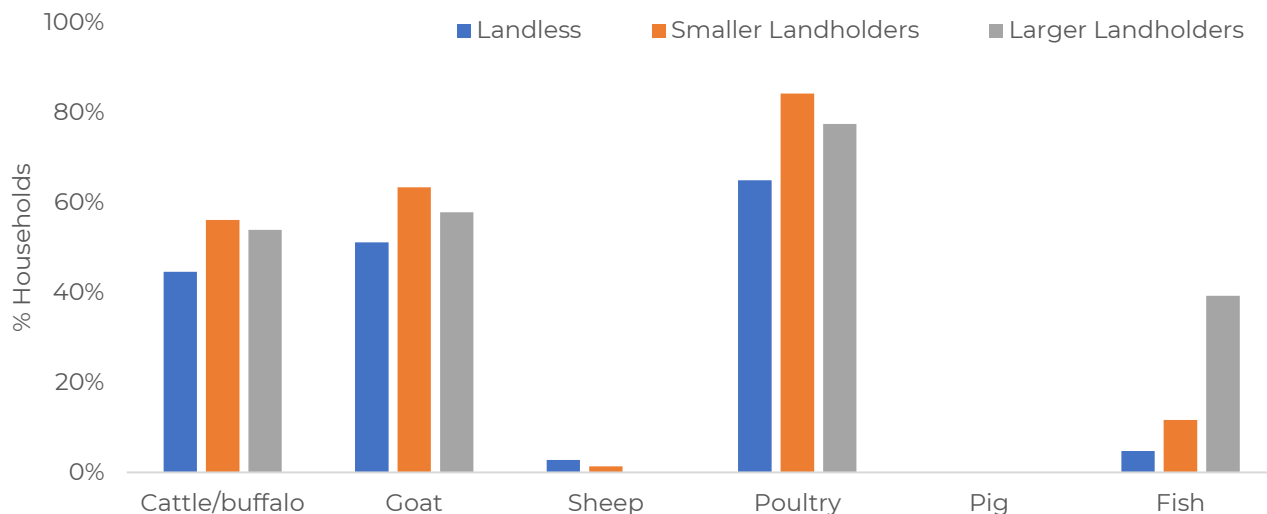
- ✓ Households sell proportionally more fruit (89.6% of amount produced), spices (87.8%), vegetables (76.4%) and legumes (70.7%) than other crops.
- ✓ Proportionally higher amounts of cereals & tubers (55.2%) and oilseeds (47.6%) are retained for home consumption.
- ✓ Most households (71.4%) sell some of their farm products, regardless of farm size (data not shown).
- ✓ Households sell farm products to local traders at the farm gate (18%), regulated markets (mandis, 29%), and in village markets (haats, 24%).

Figure 8. Places where households sell farm products



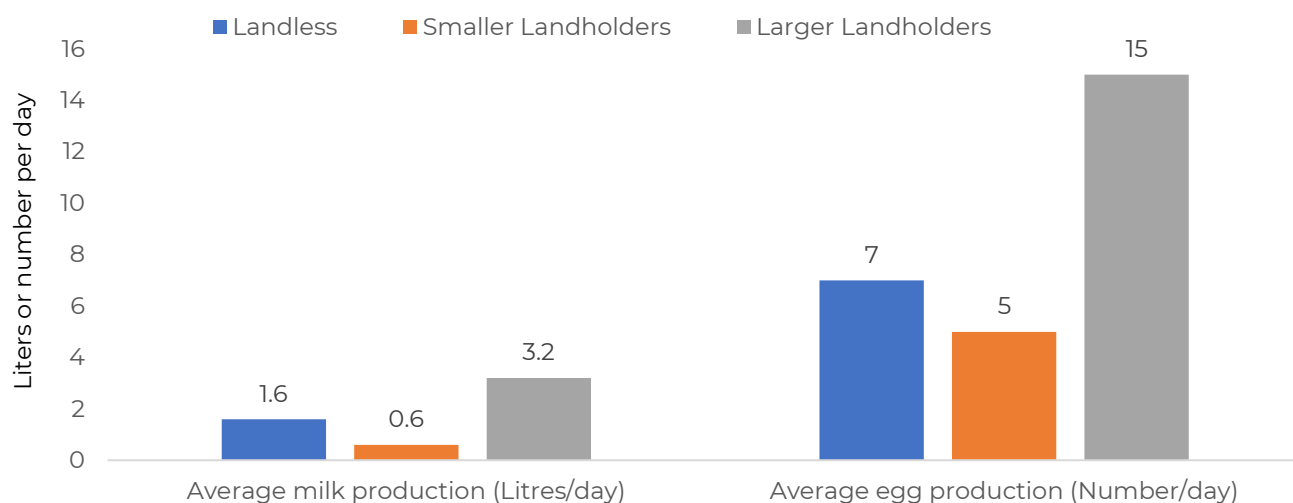
PRODUCTION OF LIVESTOCK AND LIVESTOCK-DERIVED FOODS

Figure 9. Livestock rearing in each household group



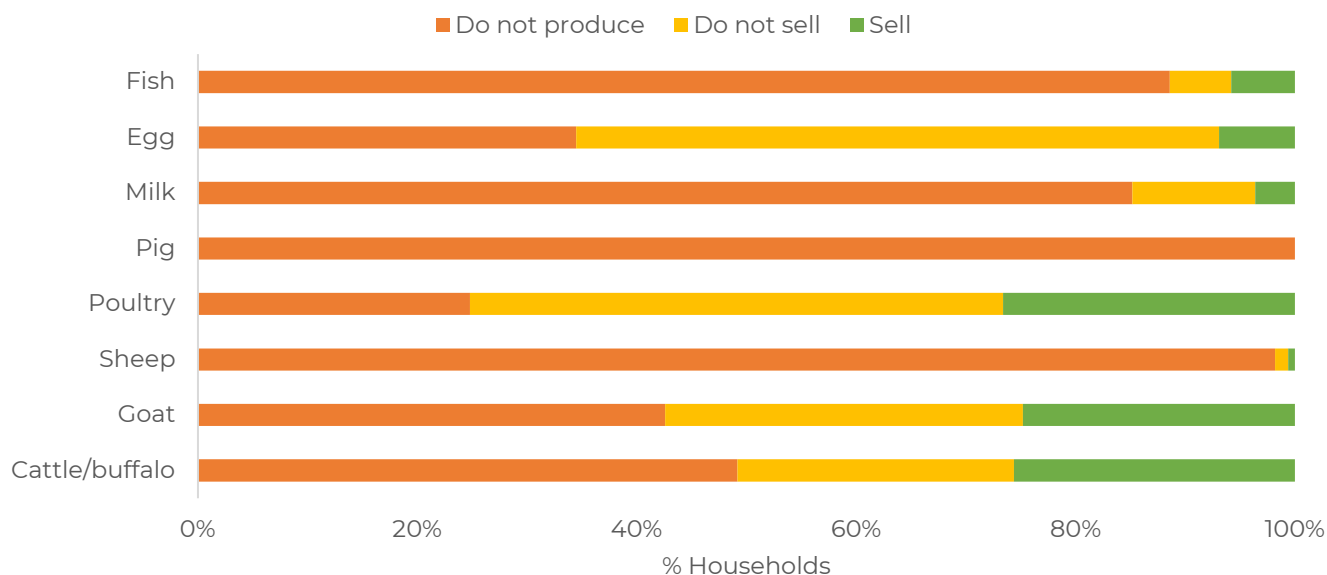
- ✓ Poultry is reared by at least 64.9% of all household groups.
- ✓ 51.1-63.4% of all households own goats and 44.6-56.1% of all households own cattle/buffalo. More households in each household group own goats, which are more efficient and easier to produce on less land, than cattle/buffalo.
- ✓ Fish are produced by 39.2% of Larger Landholder households but are less common for Smaller Landholder and Landless households.
- ✓ Daily average milk production is highest in Larger Landholder households, possibly reflecting the higher quality of feed these households are able to provide to their livestock.
- ✓ Larger Landholder households produce double the number of eggs per day of Landless households and triple the number of eggs per day of Smaller Landholder households. This may also reflect the better-quality feed Larger Landholder households provide to poultry flocks.

Figure 10. Milk and egg production in each household group



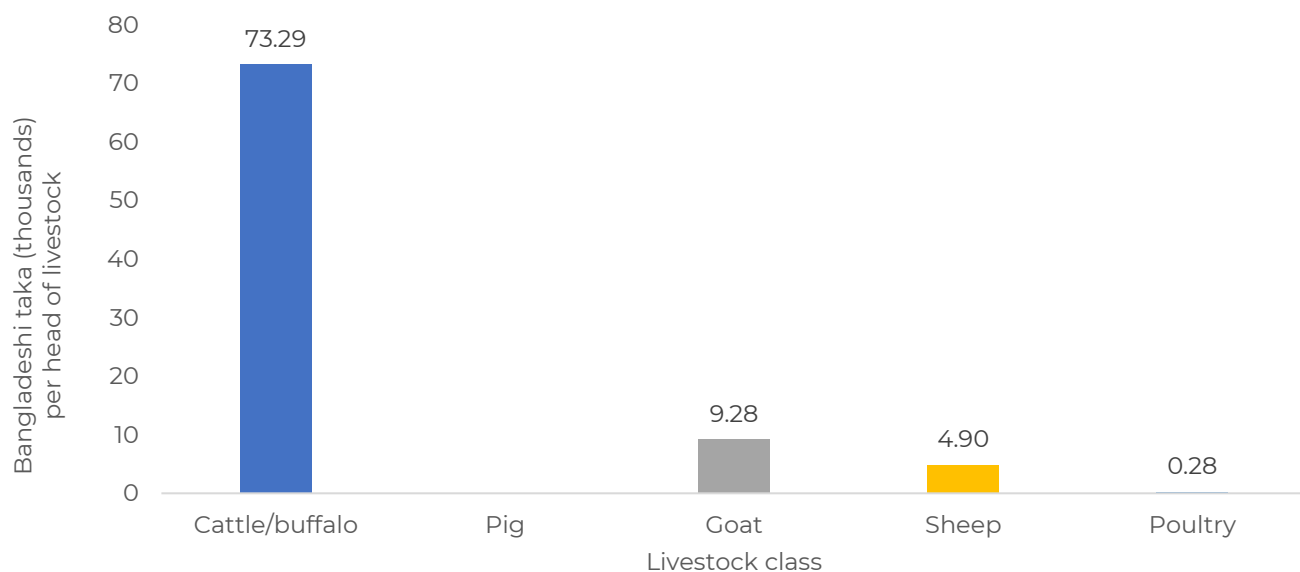
USE AND SALE OF LIVESTOCK PRODUCTS

Figure 11. Households producing, selling or retaining livestock products



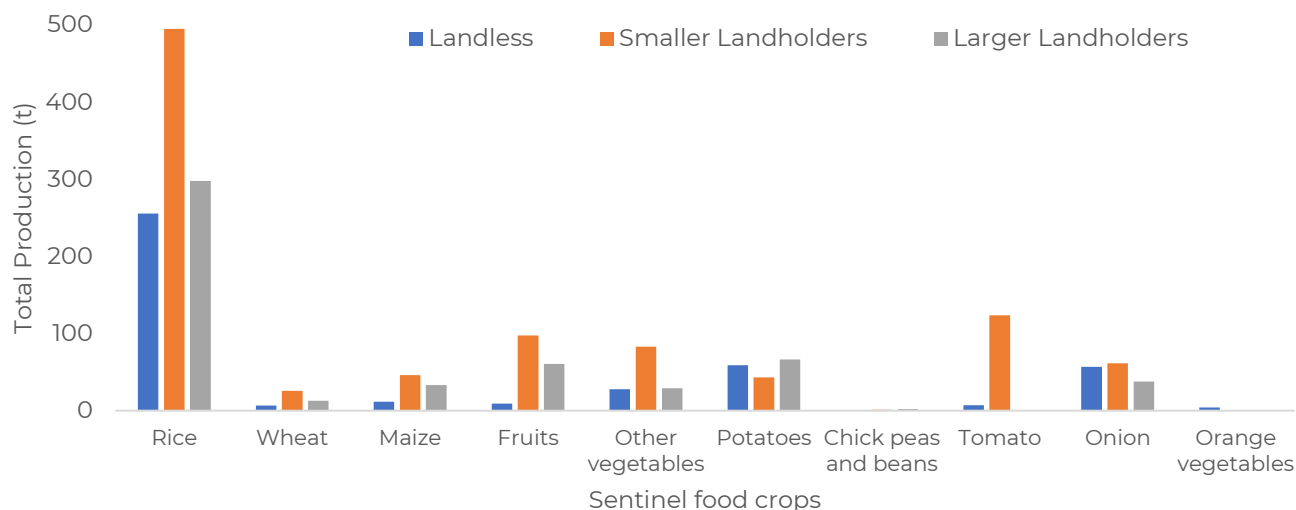
- ✓ Poultry, eggs, goats, and cattle/buffalo are the most commonly produced animal products, produced by 75.2%, 65.5%, 57.4% and 50.8% of households, respectively.
- ✓ Most households that produce eggs and poultry consume more than they sell of these products.
- ✓ Poultry, cattle/buffalo, and goats are sold by 26.6%, 25.6% and 24.8% of households, respectively.
- ✓ Farm gate prices are an order of magnitude higher per head for cattle/buffalo than for small ruminants. Very few sheep and no pigs are traded.
- ✓ Poultry prices are low, and many flocks may be self-replicating.

Figure 12. Average farm gate livestock prices



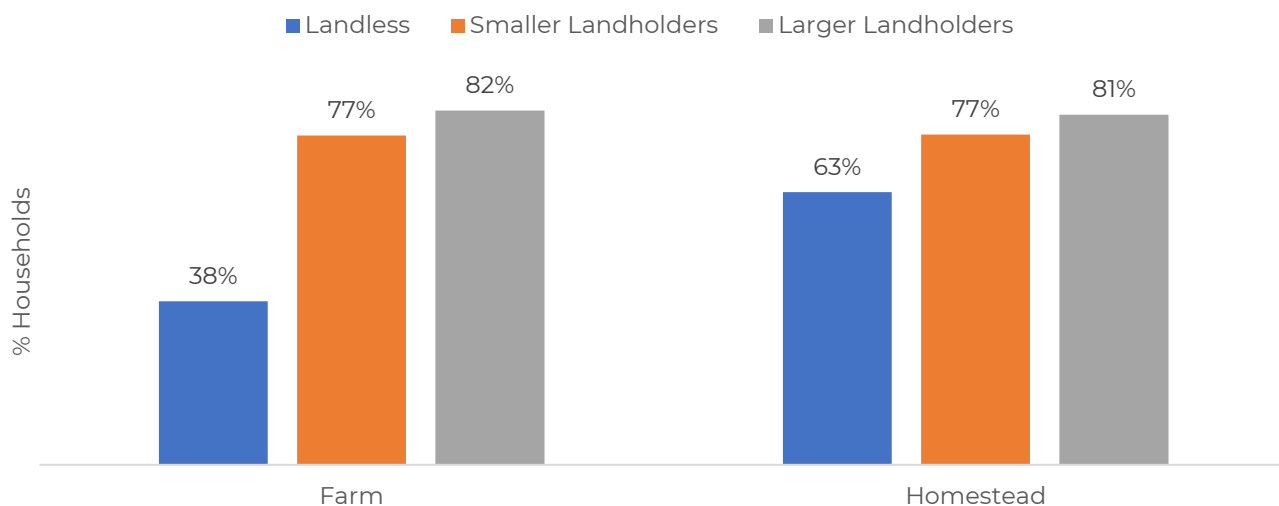
PRODUCTION AND SOURCES OF SENTINEL¹ FOODS

Figure 13. Annual production of sentinel food crops by each household group



- ✓ Across all household groups rice is the most-produced sentinel crop, and only small amounts of non-cereal sentinel crops are produced.
- ✓ Smaller Landholders produce more, in absolute terms, of sentinel foods, in particular rice and tomatoes, than Landless or Larger Landholders.
- ✓ In Smaller and Larger Landholder groups most households (at least 77%) use both the farm and the homestead to produce sentinel foods.
- ✓ For the Landless group two-thirds of households produce sentinel foods in the homestead, and one-third produce sentinel foods in farm fields.

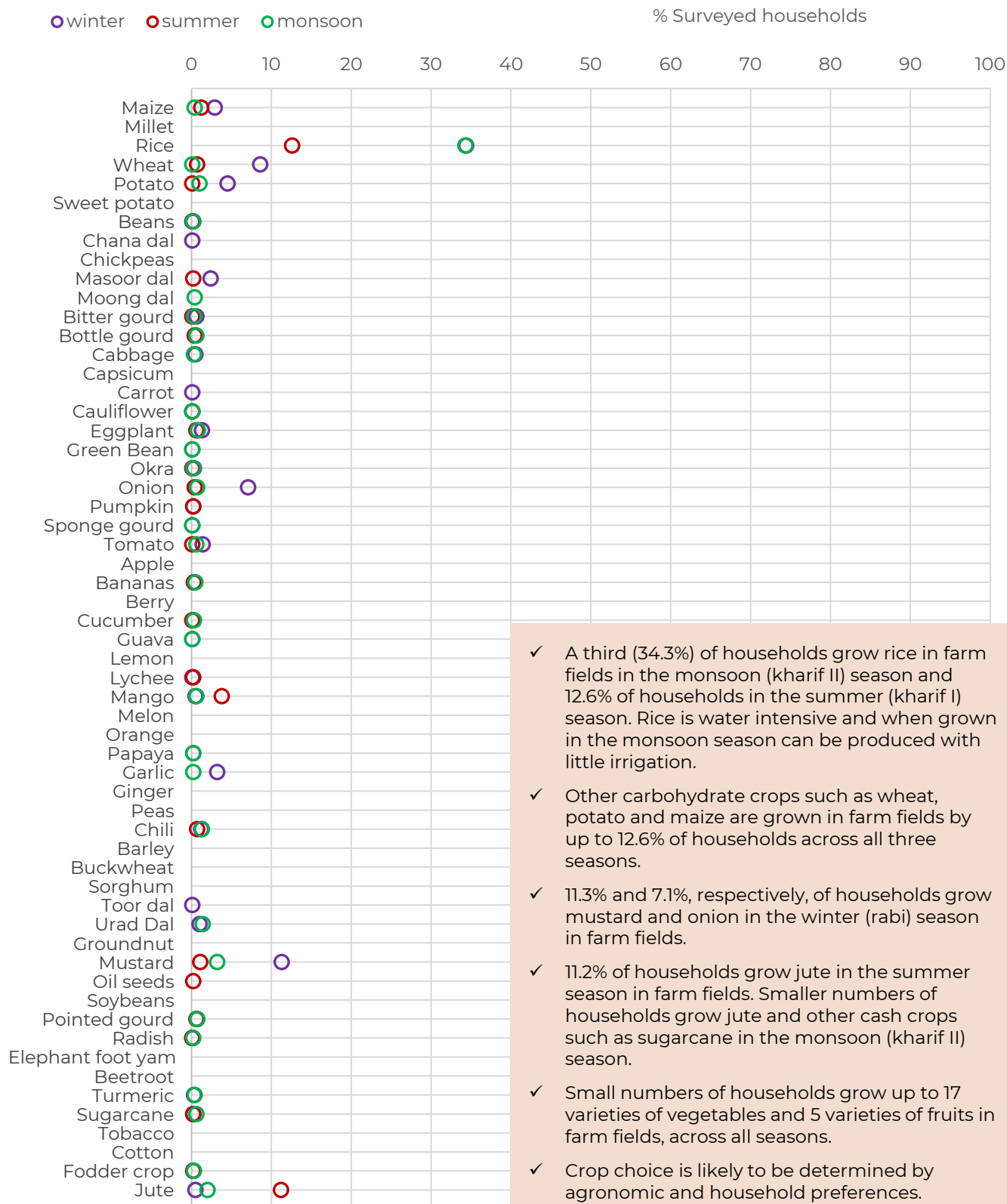
Figure 14. Where household groups produce sentinel foods



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.

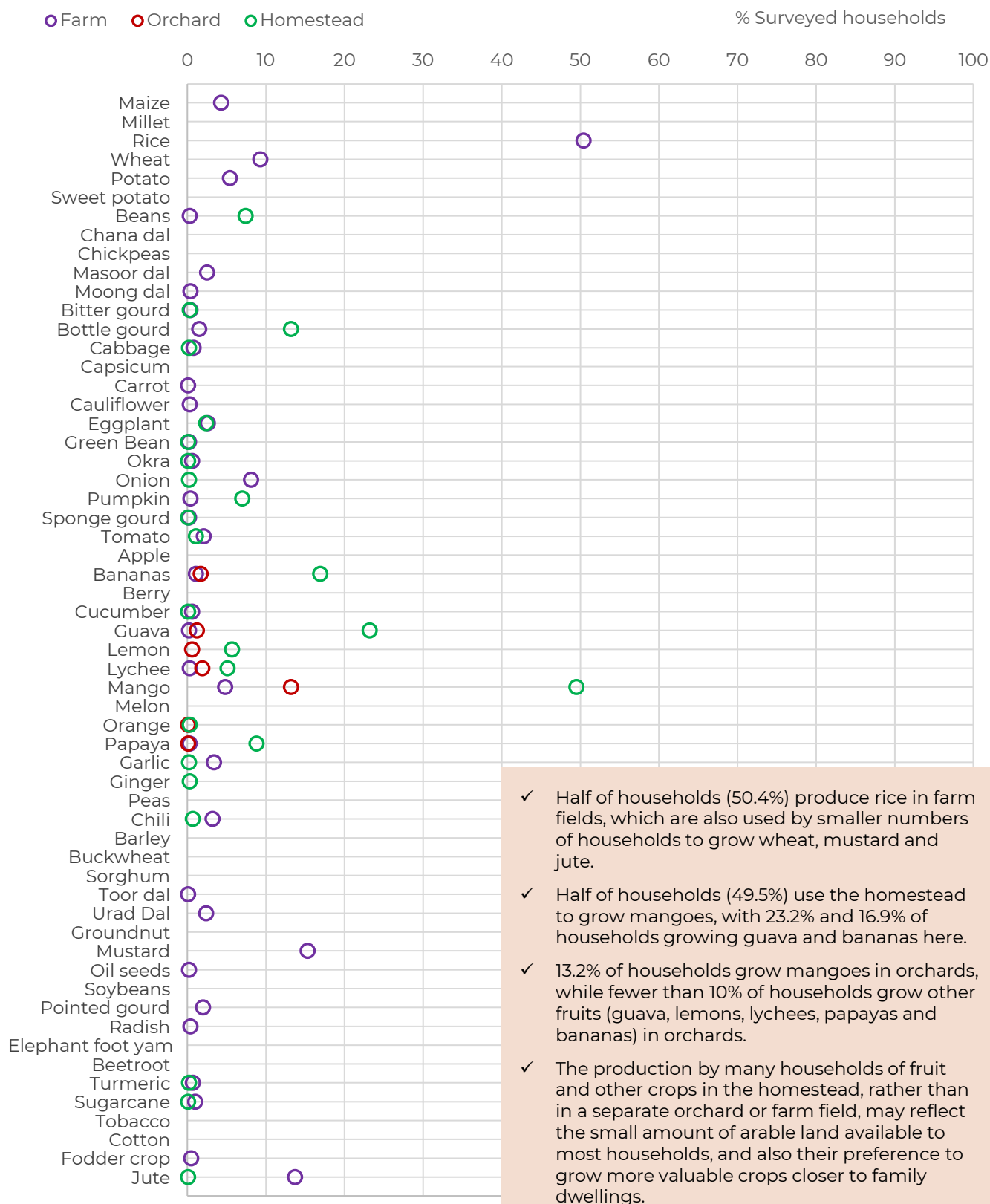
SEASONALITY OF FOOD AND OTHER CROPS

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



WHERE FOOD AND OTHER CROPS ARE GROWN

Figure 16. Where food and other crops are produced



KEY TAKEAWAYS

1. Most households (91%) identify as engaging in agriculture, with 46% owning between 0 and 0.5 ha land and 44% owning no land.
2. Many crop and livestock products are produced for both domestic consumption and sale.
3. Rice is the most-produced sentinel food crop in this district.
4. Diversity in the number of crops grown is low, with most households growing one crop in the monsoon (kharif II) season, and about a third of only Larger Landholder households growing two or more crops in the winter (rabi) season.
5. Over 70% of households sell farm products: fruits, spices, vegetables and legumes are key crop products sold, and poultry, cattle/buffalo and goats are key livestock products sold.
6. Households commonly sell farm products through regulated markets (mandis), village markets (haats), and to middlemen at the farm gate. Crop cultivation and livestock production are both important 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 female and male 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 1,000 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.

AUTHORS

Alison Laing, Agroecologist Specialist, CIMMYT
Mustafa Kamal, GIS & Remote Sensing Specialist, CIMMYT

Asif Al Faisal, Data Analyst, CIMMYT

Saral Karki, Research Associate, CIMMYT

Baishakhee Pashari Druti, Intern, CIMMYT

Ravi Nandi, Innovation Systems Scientist, CIMMYT

Palash Sarker, Deputy Director, DAE

Neha Kumar, Senior Research Fellow, IFPRI

Avinash Kishore, Senior Research Fellow, IFPRI

Mahesh Gathala, Senior Scientist, CIMMYT

Timothy Krupnik, Regional Director, Sustainable Agrifood Systems Program, Asia, CGIAR Country Convener, CIMMYT Country Representative for Bangladesh

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<https://www.cgiar.org/funders/>

To learn more, contact: a.laing@cgiar.org

To learn more about TAFSSA, contact: t.krupnik@cgiar.org; p.menon@cgiar.org

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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