Improving food and nutrition security is a major development priority for India and outcome of the Sustainable Development Goals (SDGs). To achieve the desired nutrition outcomes, pinpointing the drivers of nutrition security of rural households is critically important, these drivers are governed by complex associations between multiple variables. Our study attempts to investigate the complexity among livelihoods, agriculture, and nutritional status by assessing rural households protein deficiency and drivers of its consumption in the semi-arid regions of India.

### Introduction

- Improving food and nutrition security is a major development priority for India and outcome of the Sustainable Development Goals (SDGs).
- To achieve the desired nutrition outcomes, pinpointing the drivers of nutrition security of rural households is critically important, these drivers are governed by complex associations between multiple variables.
- Our study attempts to investigate the complexity among livelihoods, agriculture, and nutritional status by assessing rural households protein deficiency and drivers of its consumption in the semi-arid regions of India.

### Data and Study Locations:

Used 785 balanced panel households on monthly food consumption collected under ICRISAT VDSA project for year 2011 and 2014.

### Methodology:

- Household wise total protein consumption were calculated.
- The recommended dietary allowance (RDA) of protein required for an adult male of average weight is a minimum of 60 g per day (Gopalan et al. 1980).
- Using the scale of daily minimum protein requirement for an adult male, households were classified as:
  - Not deficient
  - Moderately deficient
  - Highly deficient
- Panel probit regression analysis applied on key socioeconomic variables to estimate the determinants of household protein intake at the aggregate level.

### Results

#### Protein Intake and Sources of Protein

- **Daily per capita intake (g/CU/day)**
  - 2011: Lowest 28 g and Highest 55 g
  - 2014: Lowest 30 gm Highest 60 gm
- Foods contributing to daily protein intake:
  - Cereals and millets 57% to 78%
  - Pulses 6% to 25%
  - Animal sources 7% to 27%

#### Protein Deficiency Levels Across Regions

- **A large majority of the households were protein-deficient in terms of daily consumption.**
- **Overall household’s level**
  - In 2011: 26% non-deficient, 39% moderate-deficient, 35% high deficient
  - In 2014: 26% non-deficient, 30% moderate-deficient, 45% high deficient
- **At the disaggregated level compared 2014 to 2011**
  - No change – 55%, better off – 18% and deteriorate – 27%

#### Determinants of Protein Consumption

##### Influence of HH income and food availability on it’s protein consumption

- **Positive influence:** HH head education, highest educational level, female highest, crop diversity index, expenditure, proportion of legume and millet area.
- **Negative influence:** protein consumption diversity, household farm assets.

##### Drivers that influence HH’s protein food availability and its protein consumption relationship

- **Positive influence:** proportion of legume and millet crop area, household farm assets.
- **Negative influence:** food expenditure, land size.

### Conclusions

- Income and availability doesn’t guaranty desired protein consumption.
- Determinants of protein consumption differ across regions.
- Context-specific and integrated FS interventions are needed for FSs transformation.
- Nutrition sensitization and awareness programs, women’s empowerment, farming systems for nutrition model improve nutrition security in SAT.

### Reference:

Gopalan et al. 1980, Nutrition value of Indian foods.