Effectiveness of integrated Agriculture, health livelihood and nutrition interventions to improve maternal and child nutrition and health in rural Uganda: A birth cohort study

20th October 2015

Florence Turyashemererwa

Outline

- Overview of birth cohort study
- Data collection
- Implementation status
- Results
- Conclusion

Study team

Makerere Univeristy

- Prof. Bernard Bashaasha, PI
- Dr. Flo Turyashemererwa, Project Coordinator,
- Annet Kawuma, Research Specialist,
- Edgar Agaba, Researcher

IFPRI

- Dr. Nassul Kabunga- Post doc fellow

Tufts Univeristy

- Prof. Jeffrey Griffiths, Director
- Dr. Shibani Ghosh, Associate director,

Harvard School of Public Health

- Dr. Christopher Duggan, Co-PI,
- Dr. Wafaie Fawzi, Co-PI,
- Dr. Nilupa Gunaratna, Co-I

Study Aim

To understand the effect of integrated interventions

(nutrition, agriculture, and health interventions)

on the health & nutritional status of mothers and children under two years of age

Specific Objectives

- To determine the effect of integration of nutrition, agriculture and health interventions on health and nutrition status of pregnant women and children under two years of age.

- To determine the effect of aflatoxin exposure and environmental enteropathy on health and nutritional status of pregnant women and children under two years of age

Specific Objectives Cont…

- To assess the coverage, uptake, and adherence to CC intervention messages and activities and assess effect of heterogeneity on pregnant women and children under two years of age.

- To determine heterogeneity in the effect of CC interventions on maternal and child health and nutritional status due to variability in households

Research Design

- Utilize a cohort of mothers and young children followed from pregnancy through the first two years of life
- Randomly selected CC intervention and matched non-CC sub-counties that will provide a control
- Each selected CC sub-county individually matched to a non-CC sub-county with the same
  - Agro-ecology
  - predominant language

- The matched sub-counties are in non-CC districts to minimize spillover from intervention areas

Table 1: Implementation sites

District	Sub-county	Predominat Language	Status
Kabale	Ruhiija	Runyankore/Rukiga	Intervention
Kabale	Nyamweru	Runyankore/Rukiga	Intervention
Kanungu	Rugyeyo	Runyankore/Rukiga	Intervention
Kamwenge	Bwiizi	Runyankore/Rukiga	Intervention
Kabarole	Kibito	Runyankore/Rukiga	Control
Rukungiri	Kebisoni	Runyankore/Rukiga	Control
Rukungiri	Bujangari	Runyankore/Rukiga	Control
Rukungiri	Buyanja	Runyankore/Rukiga	Control
Nebbi	Porombo	Alur	Intervention
Zombo	Atyak	Alur	Control
Pader	Atanga	Acholi	Intervention
Lamwo	Agoro	Acholi	Control
Lira	Agweng	Langi	Intervention
Kole	Ayer	Langi	Intervention
Apac	Aduku	Langi	Control
Apac	Apac	Langi	Control

Sample size

- 322 pregnant women in each of the 16 sub counties

- Target is to enrol 5152 pregnant women and children
  - Enrolled 5,044 (98%)
  - Follow up over a three-year period

Eligibility Criteria

- Pregnant women aged 15 -49 years
- Women in their second and third trimester
- Living in the study area until study follow up period
- Mother provides informed consent (potentially as an emancipated minor

Identification of pregnant women

- Work close with the Village Health Team's/guides to identify pregnant women

Data collection

Table 4: Time points for data collection

Time point	Description
1	Antenatal 1
2	Antenatal 2
3	0-3 days after birth
4	Child is 3 months
5	Child is 6 months
6	Child is 9 months
7	Child is 12 months
8	Child is 18 months
9	Child is 24 months

Data Collection

- Household level
  - Demographic and socioeconomic information

    Household composition, indicators of wealth, assets, income, livelihood activities, social participation, water and sanitation, access to health services
  - Agriculture

    Activities, production and sale, labor, utilization of technologies and management practices
  - Food security
  - Gender roles and dynamics

    Women's role in agriculture; access, ownership, and control of assets, production, and income; decision-making; time use; access to agricultural and nutritional information

Data Collection

- Caregiver and child (0-23 months)
  - Diet
    - Including infant and young child feeding practices
  - Health
    - Recent morbidity, hygiene, utilization of health interventions and services (antenatal care, family planning etc)
  - Nutritional status
    - Anthropometry
- Venous blood draws
  - Iron, Malaria, Aflatoxins

Table 1: Implementation status

District	Sub-county	Number enrolled (out of 322)
Kabale	Ruhiija	236
Kabale	Nyamweru	271
Kanungu	Rugyeyo	259
Kamwenge	**Bwiizi**	**322**
Kabarole	**Kibito**	**322**
Rukungiri	Kebisoni	280
Rukungiri	Bujangari	296
Rukungiri	Buyanja	311
Nebbi	**Porombo**	**322**
Zombo	**Atyak**	**322**
Pader	Atanga	308
Lamwo	**Agoro**	**322**
Lira	**Agweng**	**322**
Kole	**Ayer**	**322**
Apac	Aduku	311
Apac	**Apac**	**322**

Data Collection

Sub-county	No. of pregnant women sampled	Status
Rugeyo	237	Intervention
Buyanja	323	Control
Bugangari	324	Control
Kebisoni	299	Control

STUDY RESULTS (baseline-Visit 1)

(mothers only)

Results

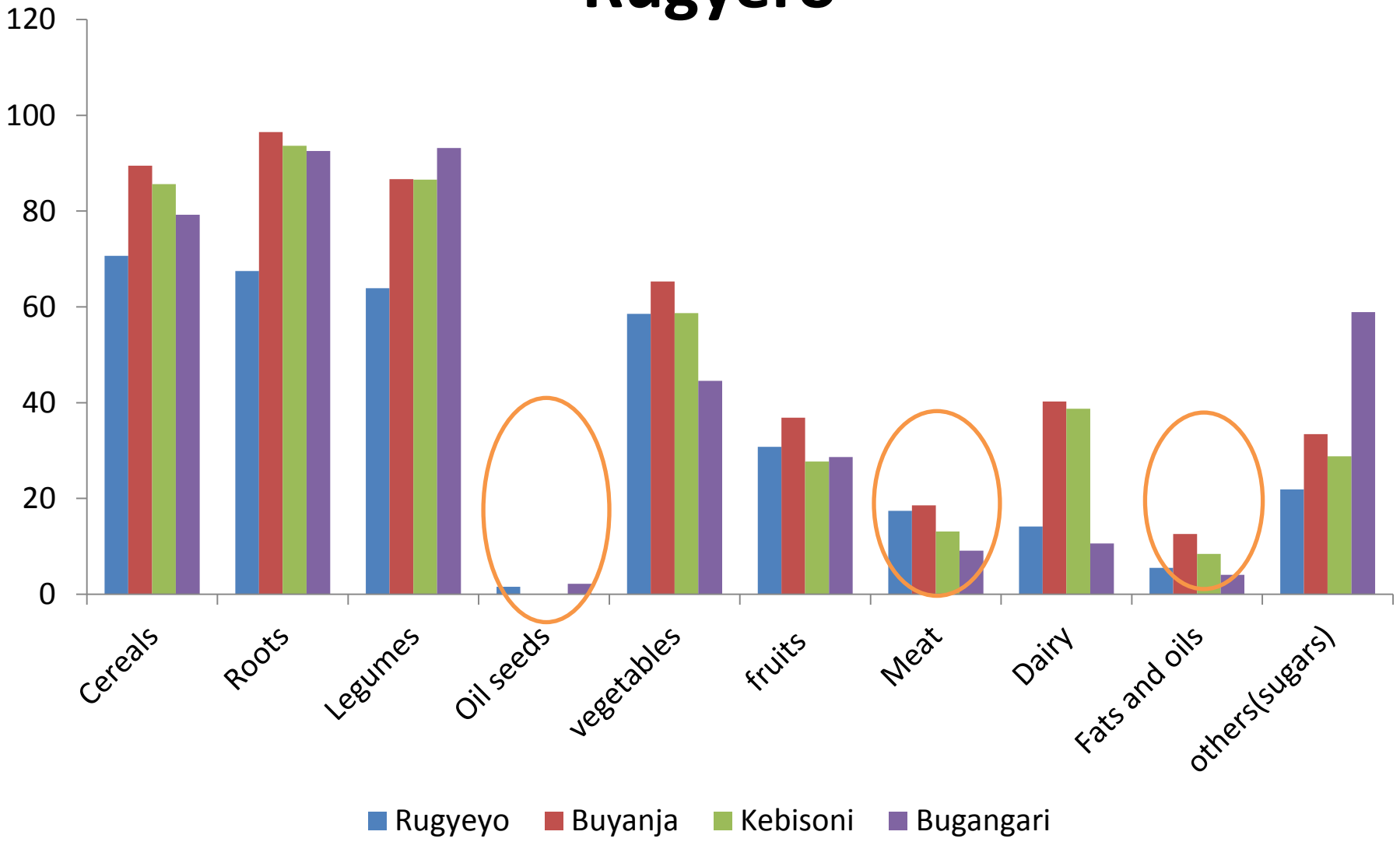
- Dietary diversity
- Household food security
- Nutrition status of women
- Maternal anemia
- Health Services
- WASH
- Social Participation, access to information and program exposure

Household Dietary diversity score- %

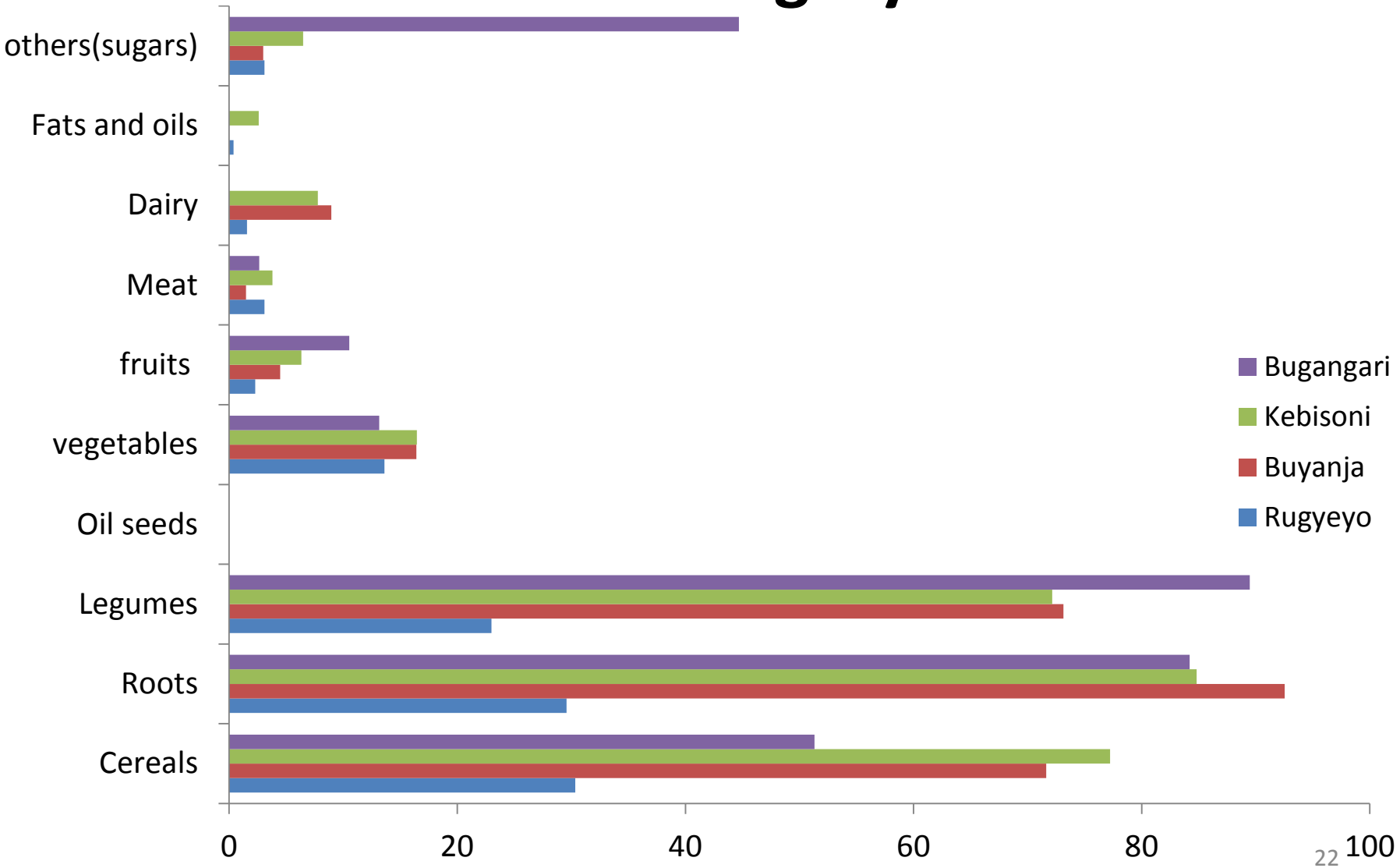
	Percentage consuming lowest and recommended number of food groups			
Dietary diversity score	**Rugeyo Intervention**	**Kebisoni Control**	**Buyanja Control**	**Bugangari Control**
lowest (≤ 3 food groups)	40	27	21	24
4 or more food groups)	59	73	79	76

Rugeyo(n=259); Kebisoni (n=280); Buyanja (n=311) Bugangari(n=296)

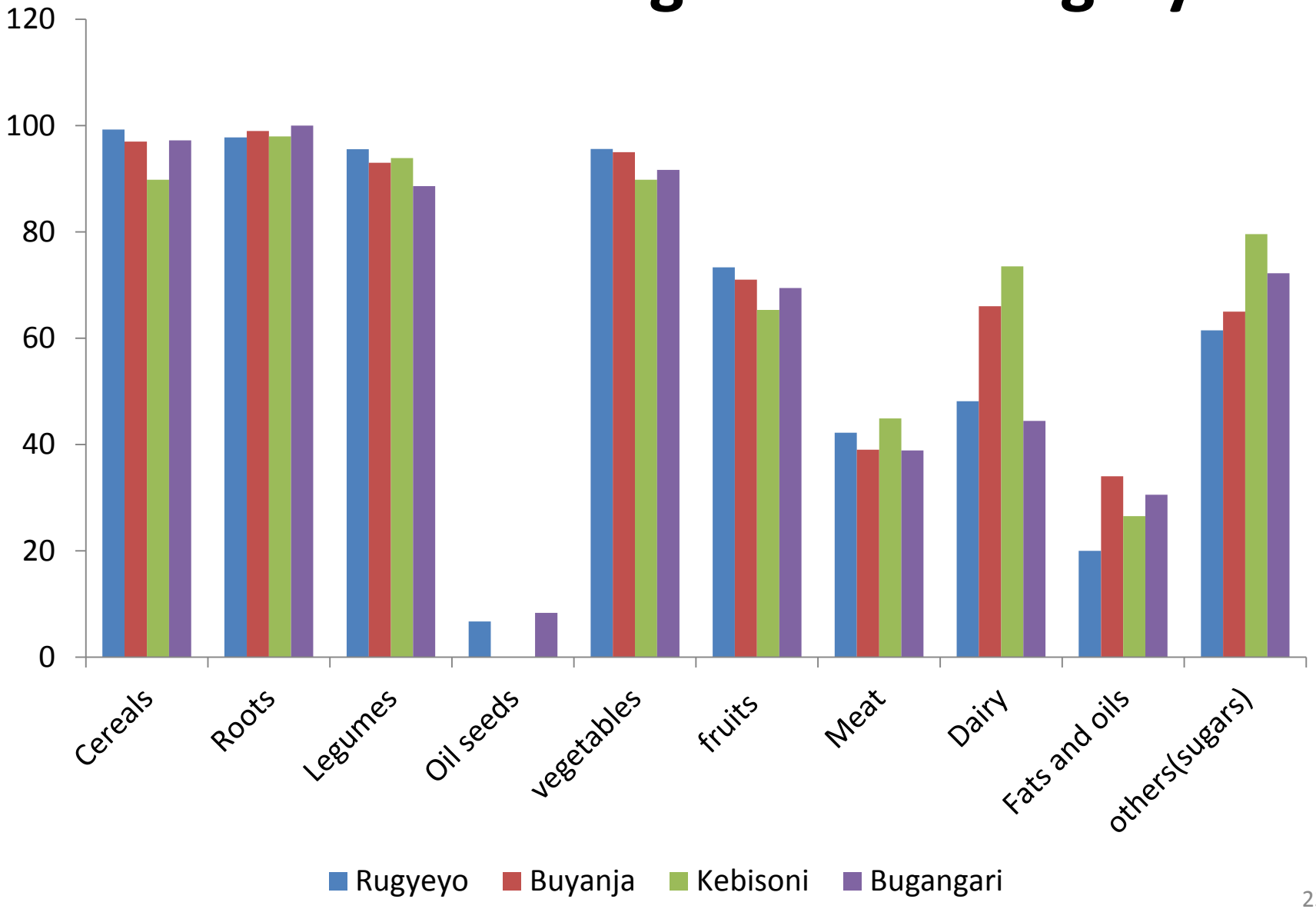
Consumption of food groups Rukungiri vs Rugyero



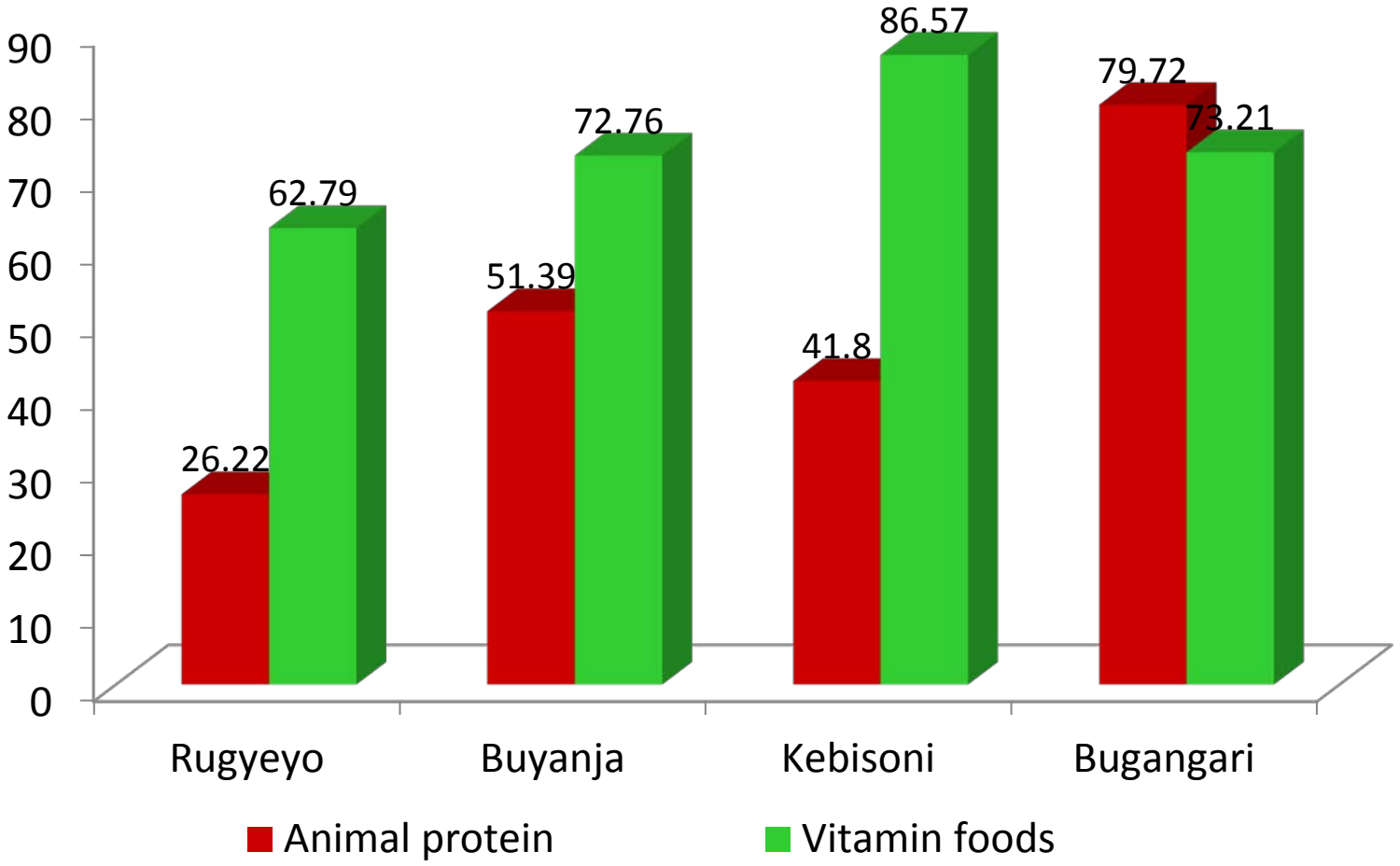
Food groups consumed in the lowest HDDS category



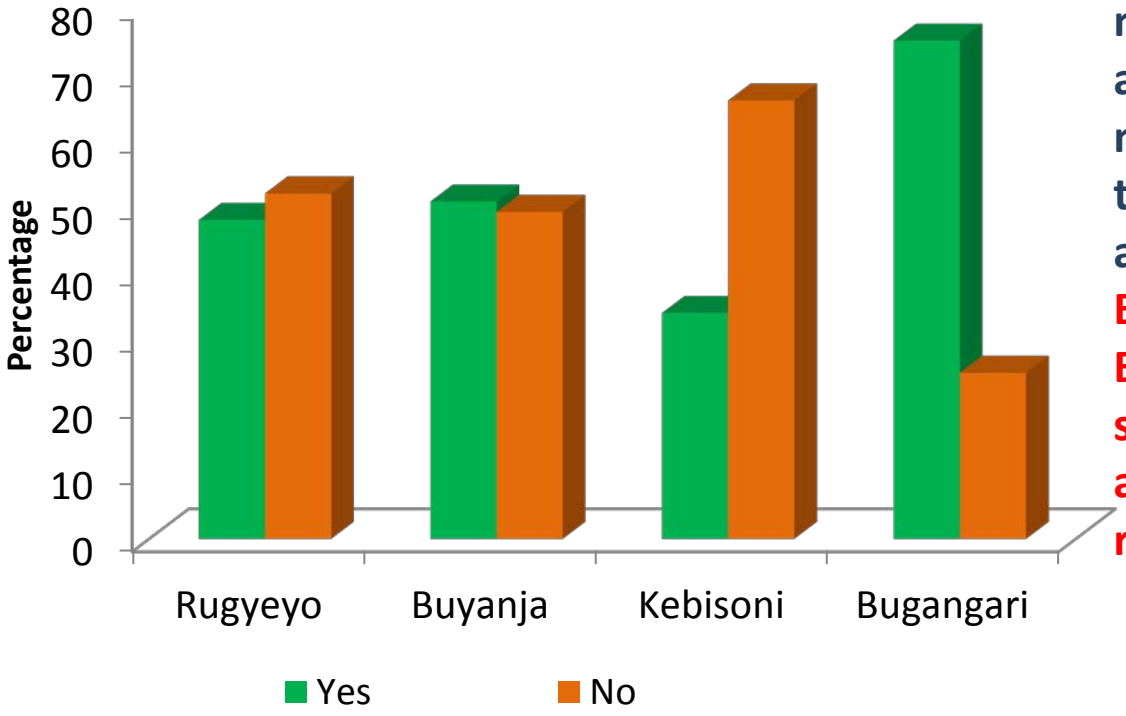
Percentage of food groups consumed by household in high HDDS category



Consumption of Animal Proteins and Vitamin rich foods



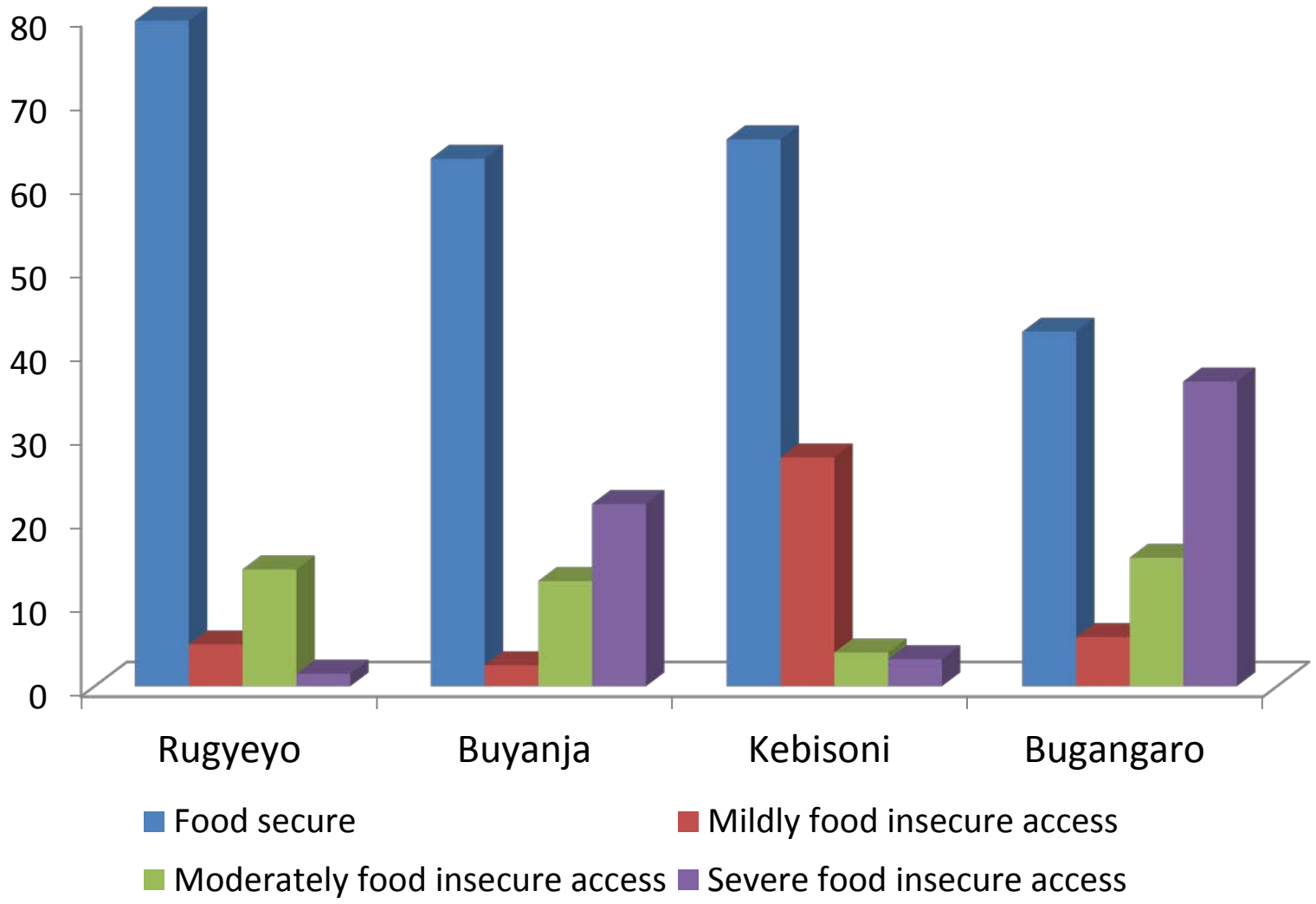
Household Food Security



On average, a household in Rugyeyo sub-county has sufficient food for about 10 months in a given year. an average household is moderately food secure in terms of household food access

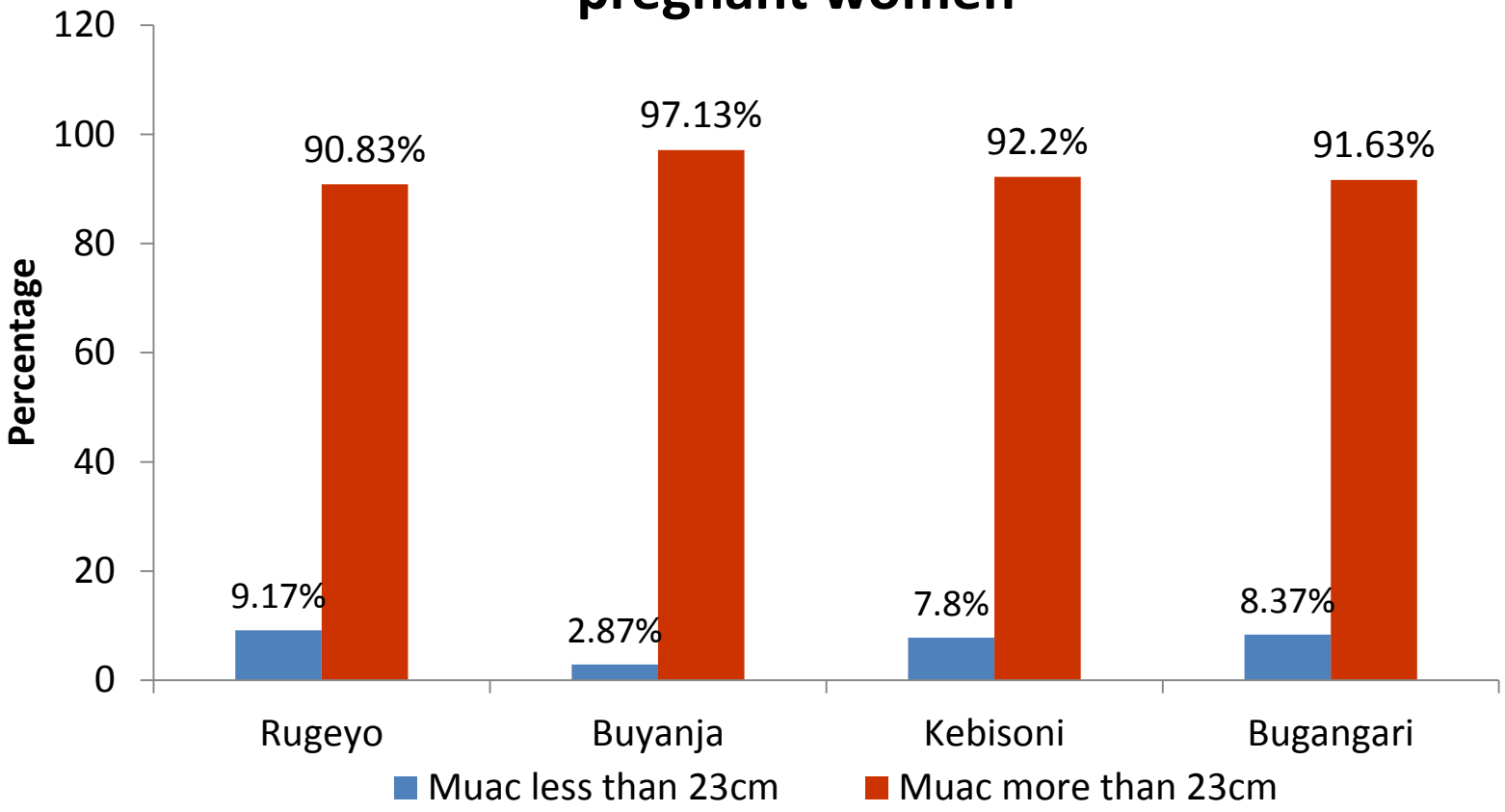
Buyanja, Kebisoni and Bugangari sub-counties has sufficient food for about 9, 8 and 7months in a given year respectively.

Household Food Insecurity Access Prevalence (HFIAP)



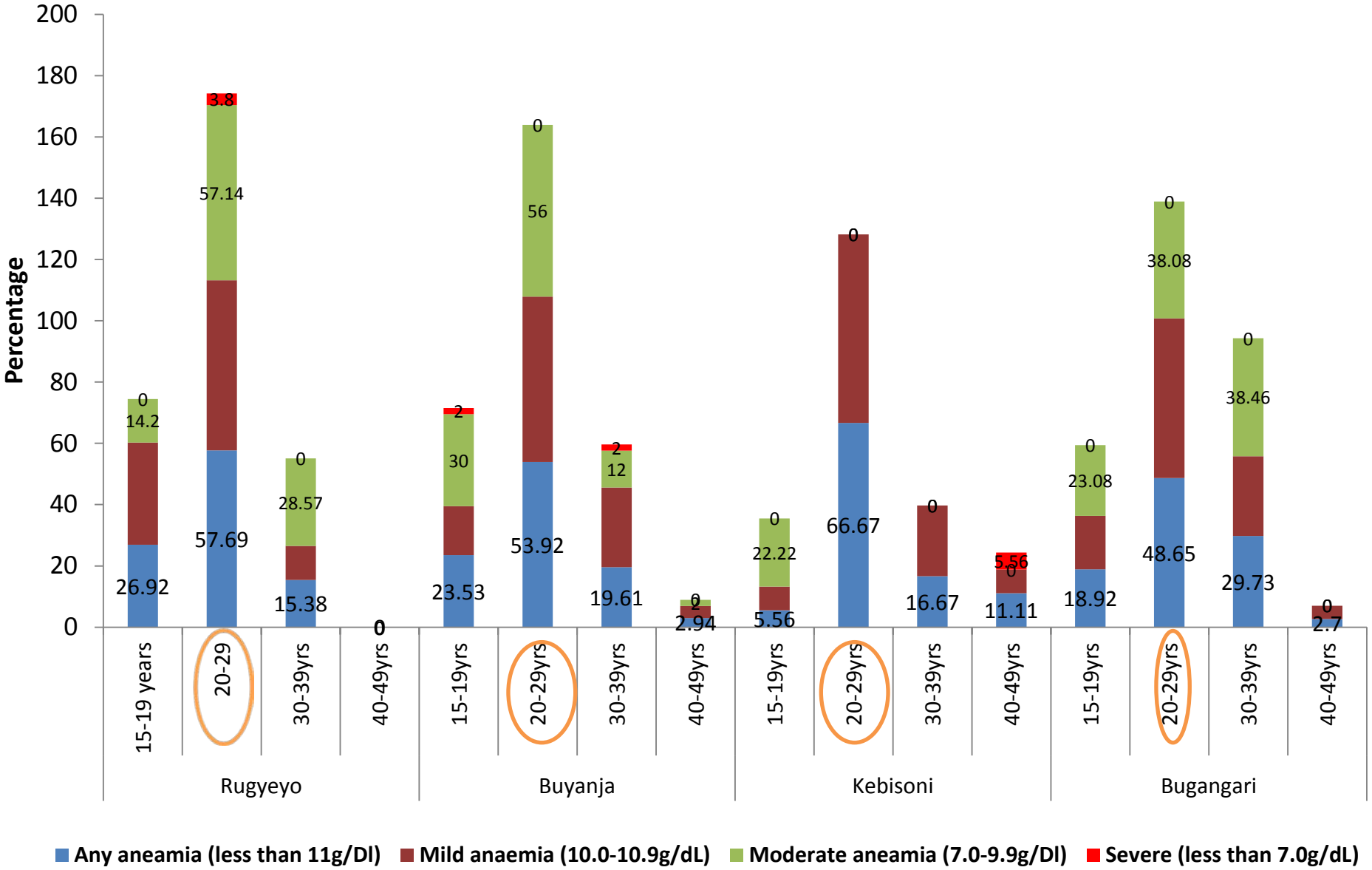
Maternal Wasting

Mid-Upper Arm Circumference (MUAC) for pregnant women



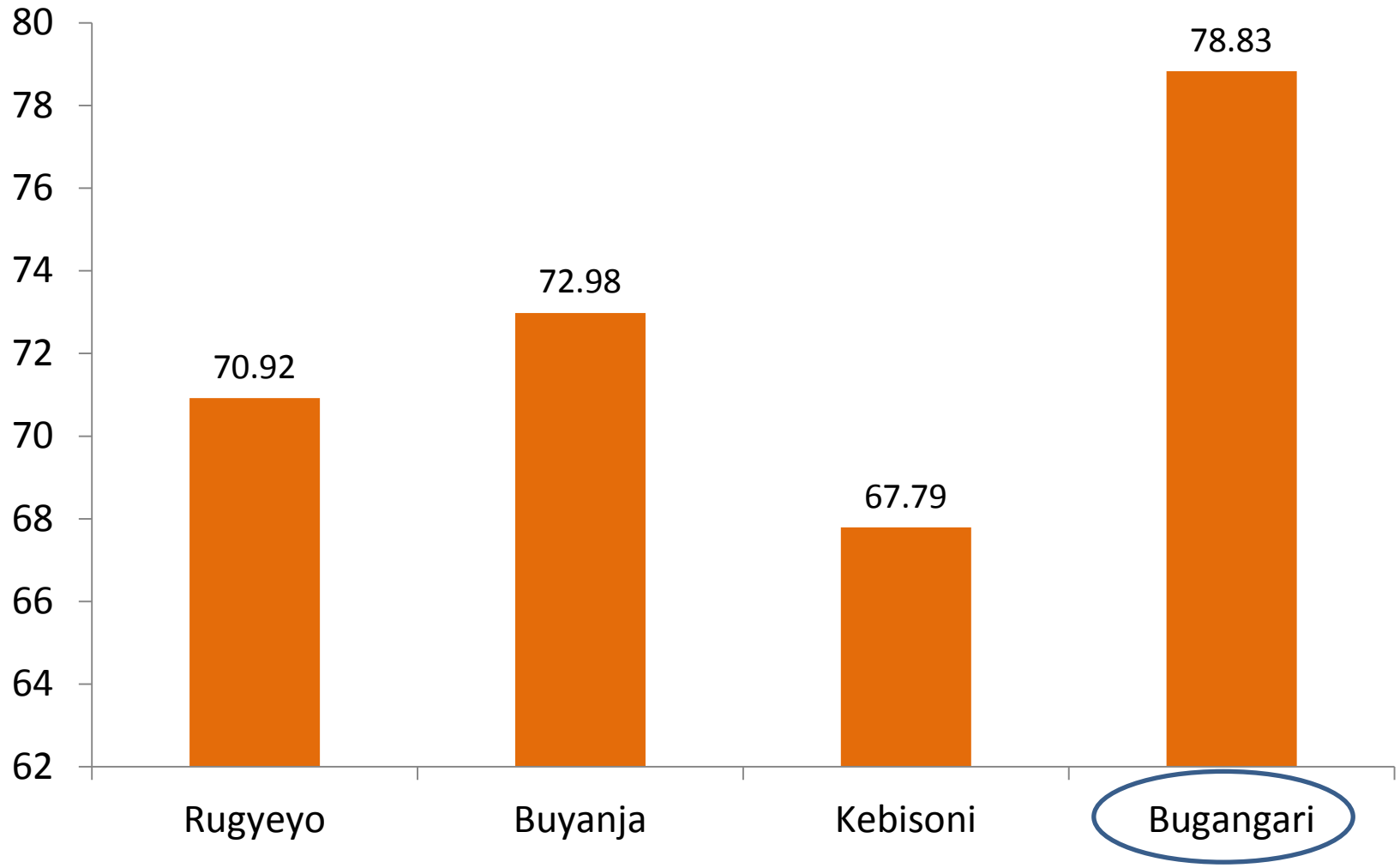
- **Based on MUAC, Generally, most women are well nourished**
- **Rugyeyo has more mothers (9.17%) prone to poor birth outcomes compared to other subcounties in Runkungiri**

Maternal Anemia prevalence-Rugeyo Vs Rukungiri sub counties



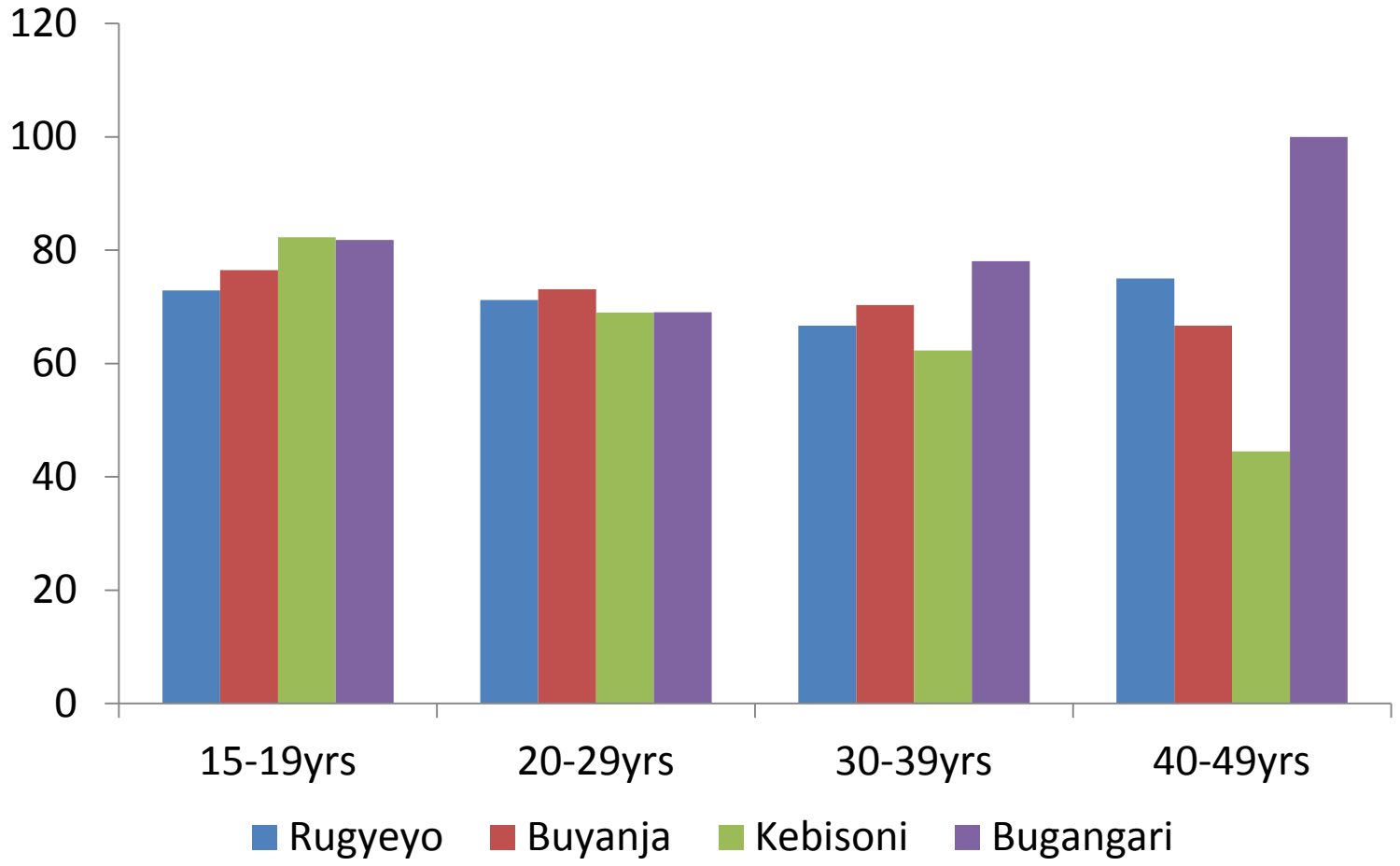
Seeking Health Care Services

%Pregnant women who went for ANC



Rukungiri has higher number of women (overall) attending ANC compared to Rugyeyo

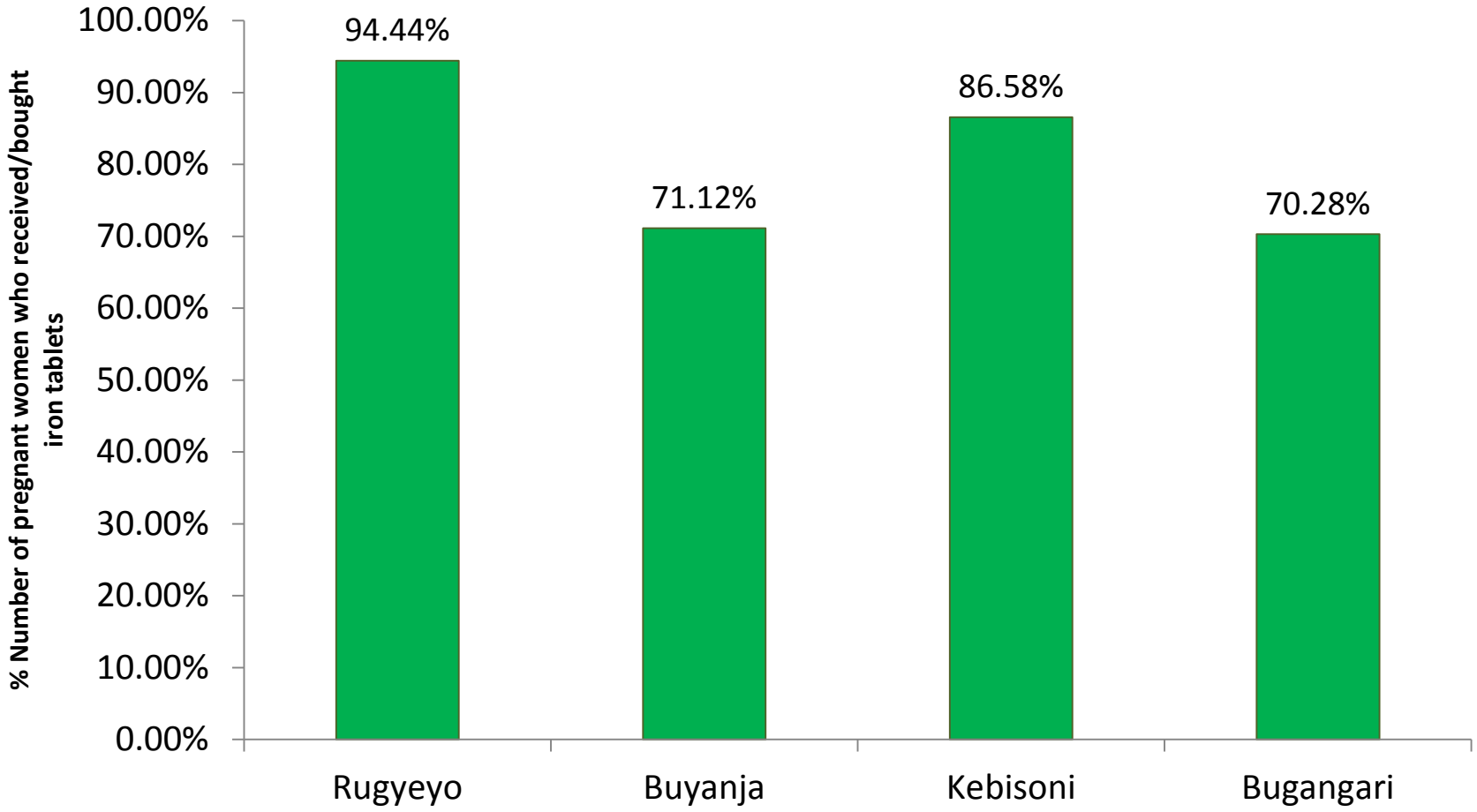
%Pregnant women who went for ANC by age group



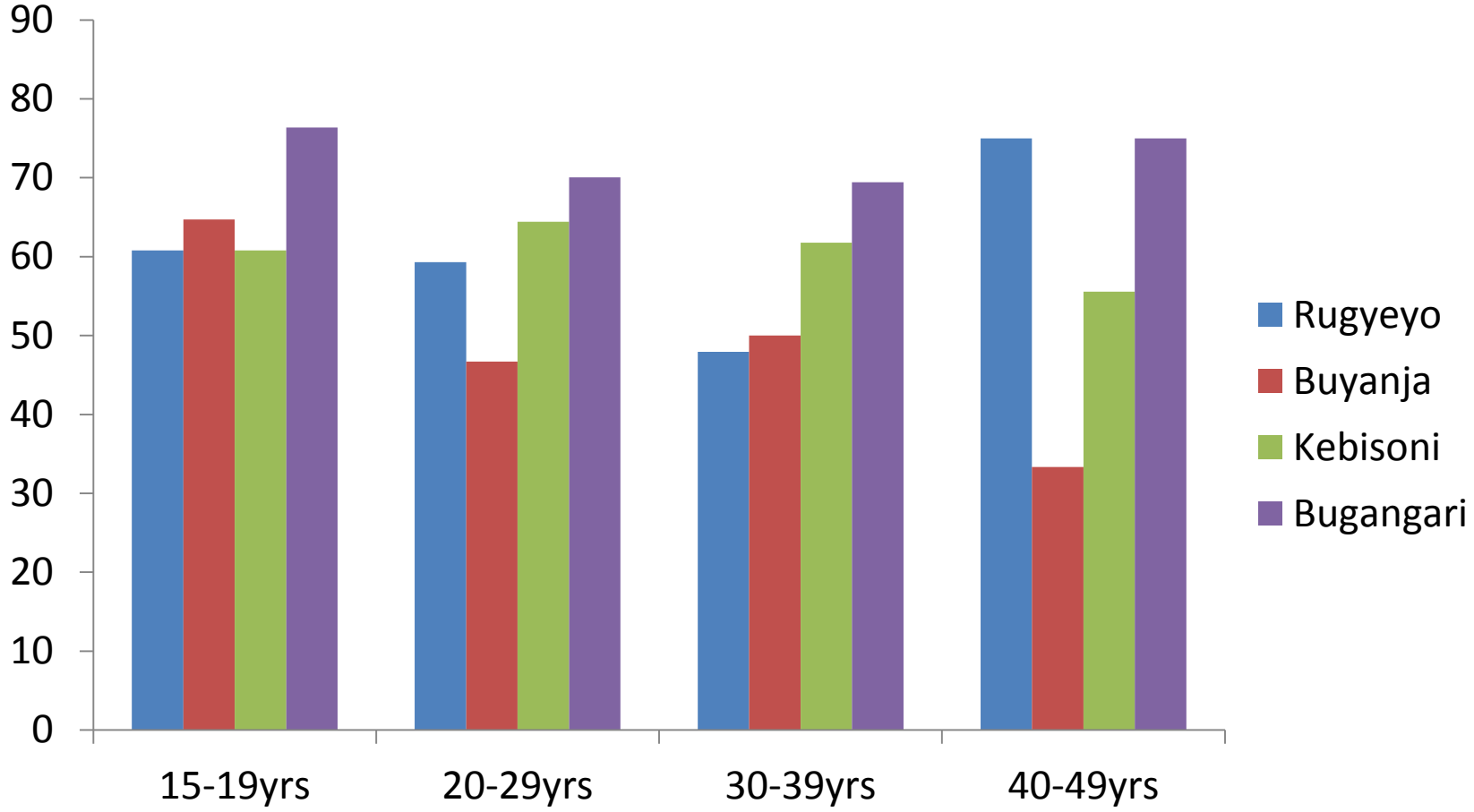
More Women in Rukungiri sought antenatal care compared Rugyeyo

All women 40-49yrs in Bungangari sought ANC

%Pregnant women who received or bought iron tablets(overall)

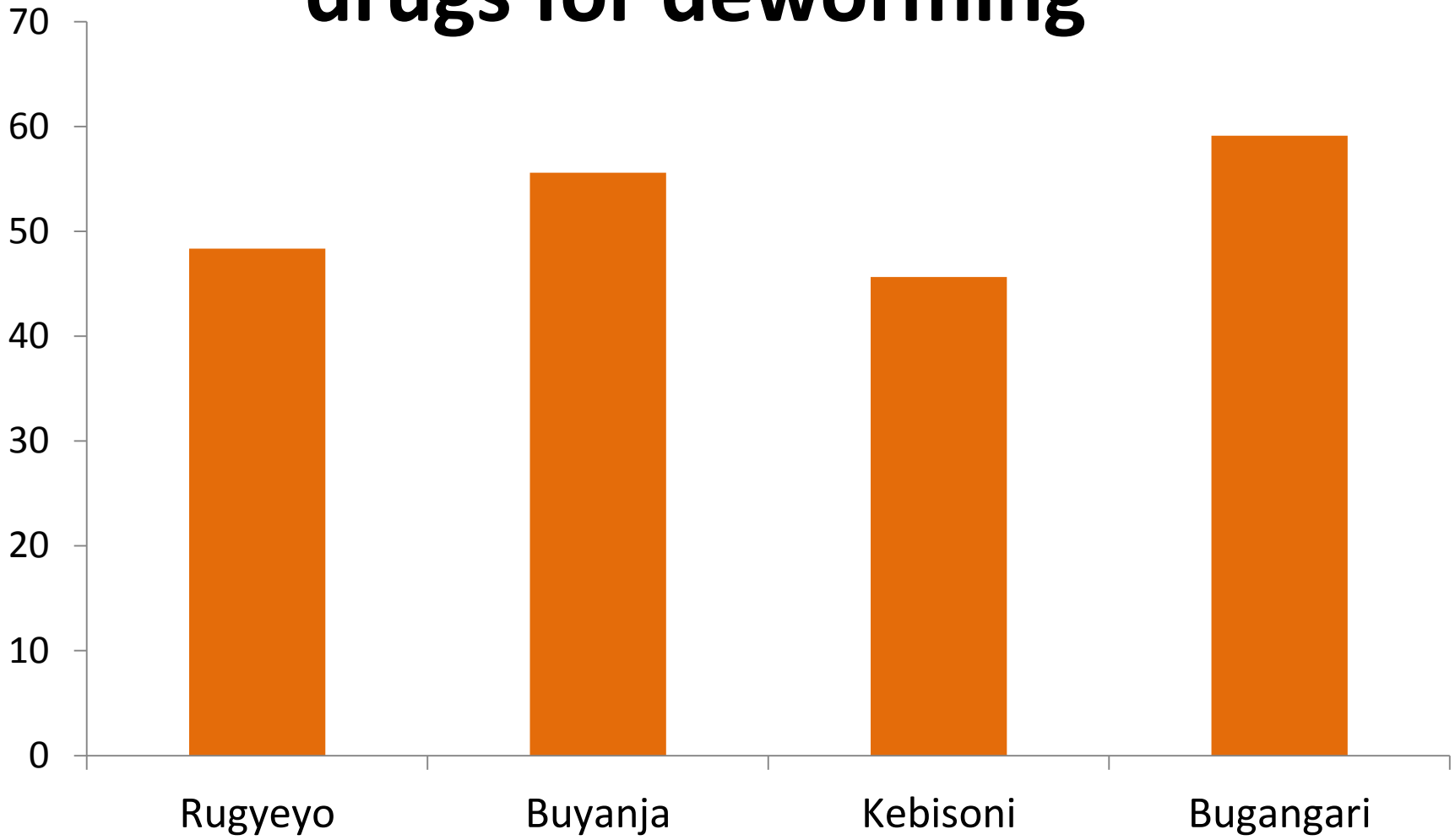


%Pregnant women who bought or received iron tablets(by age group)

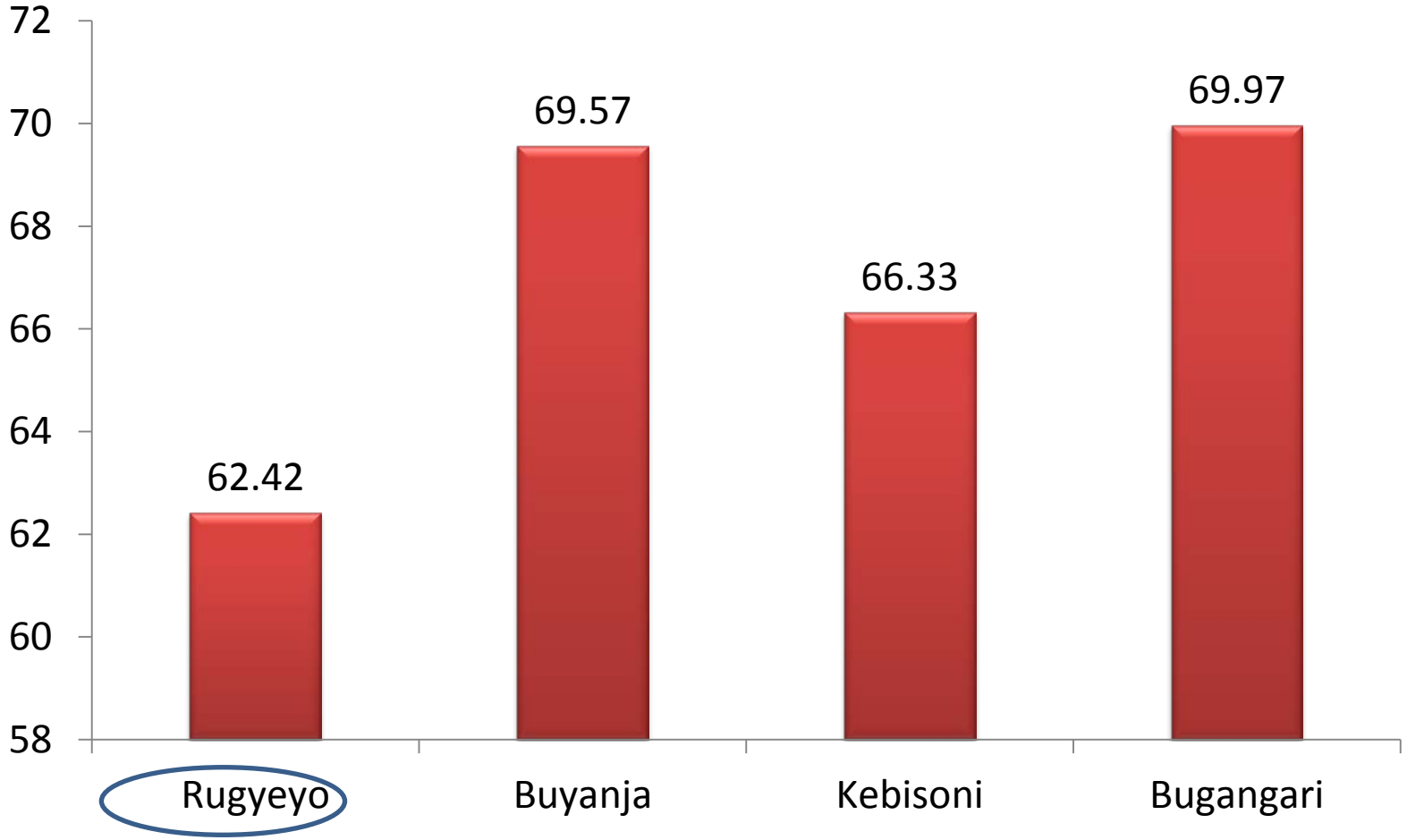


Bugangari had the highest number of pregnant women who received iron tablets
Rugyeyo had lower than 2 subcounties of Rukungiri.
20-29yrs had the lowest yet they had the highest anemia prevalence

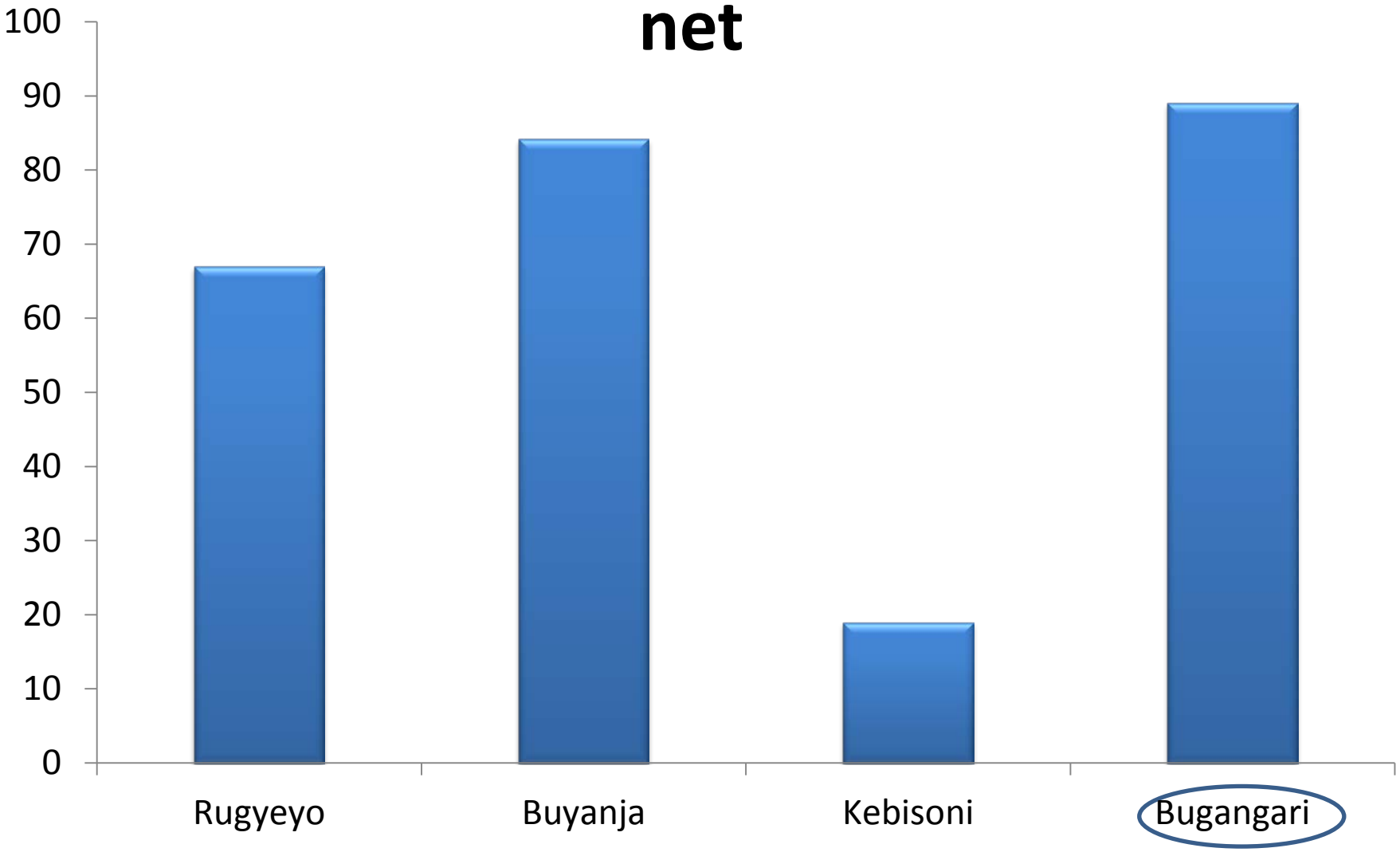
% of pregnant women who received drugs for deworming



% of women who were offered HIV testing

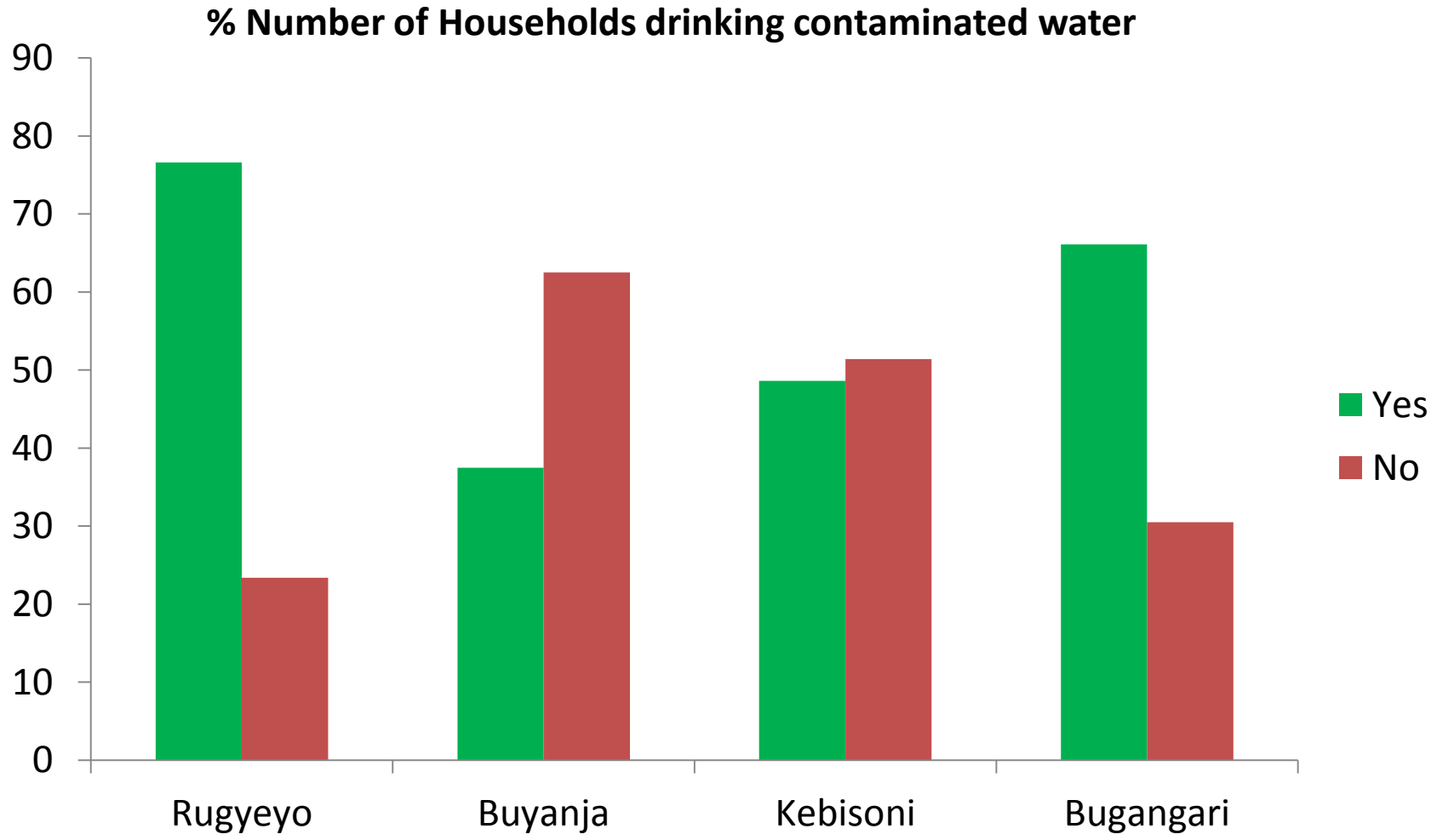


%Pregnant women who slept under a bed net



Bugangari has the highest number of women sleeping under a net
Kebisoni and Rugyeyo have lower number of women sleeping under a net

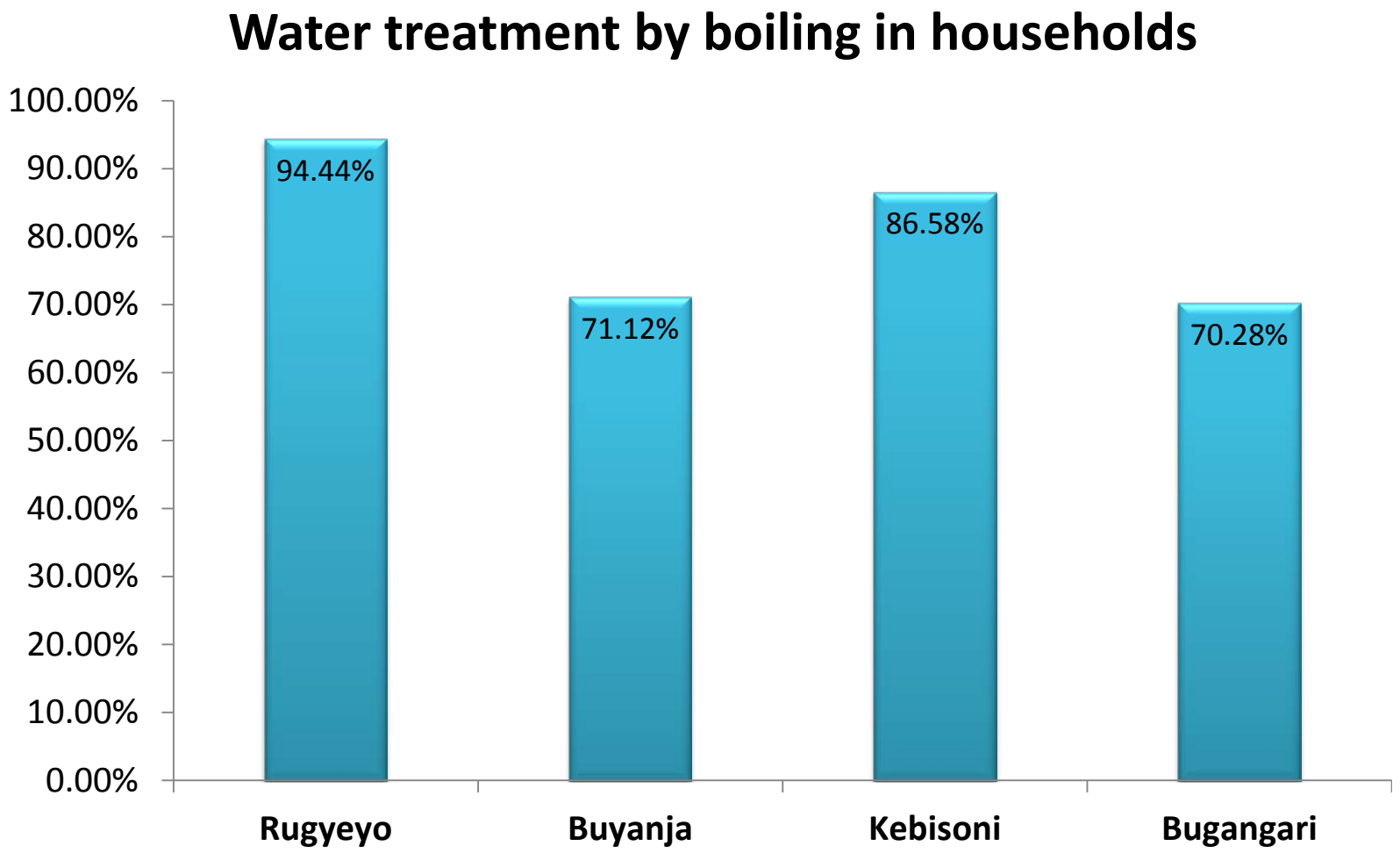
Water, Sanitation and Hygiene



No of water tests conducted: Rugyeyo n=47, (Buyanja n=40, (Kebisoni n=35, Bugangari n= 59

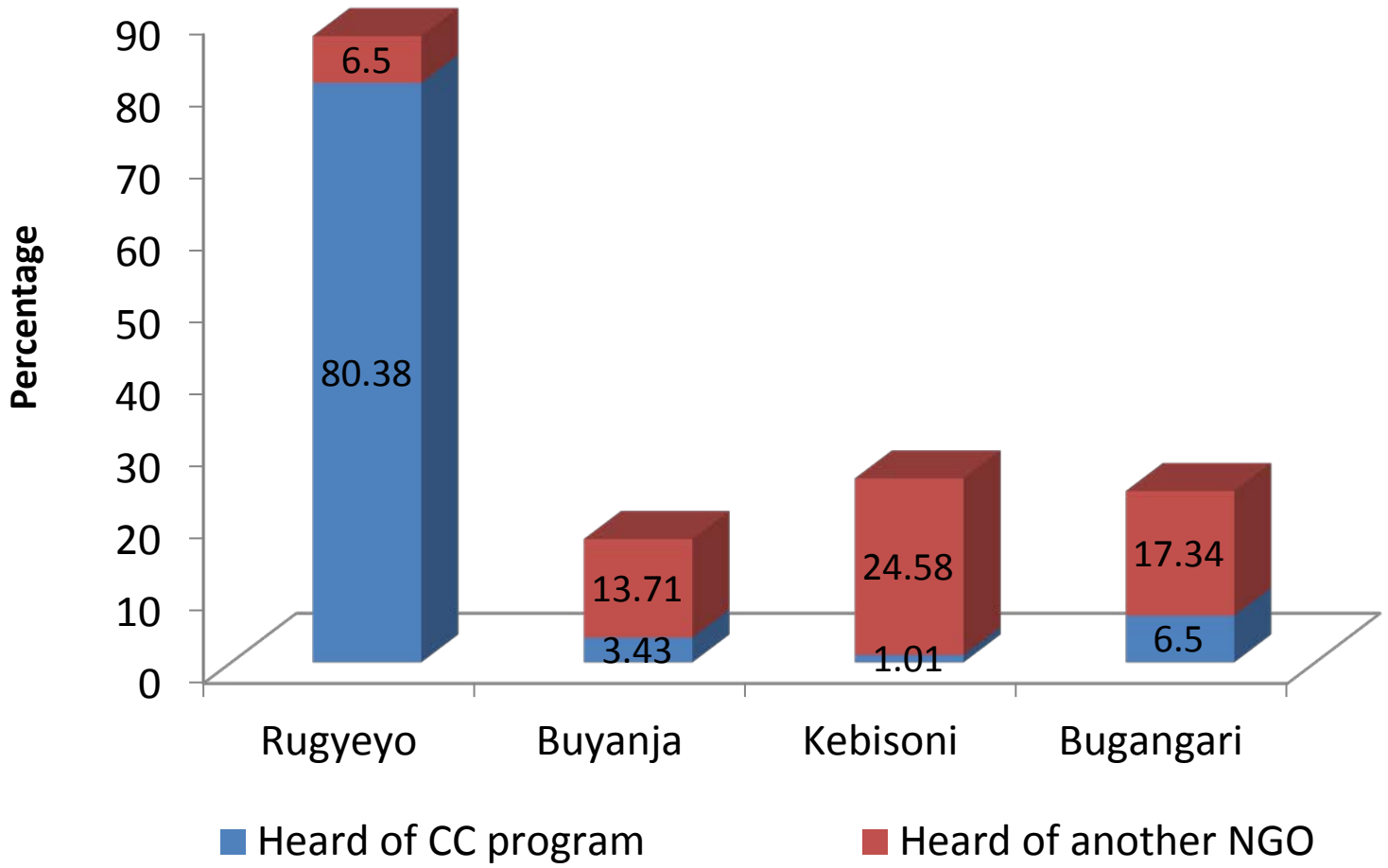
Rugyero has the highest number of households drinking contaminated water

Water, Sanitation and Hygiene

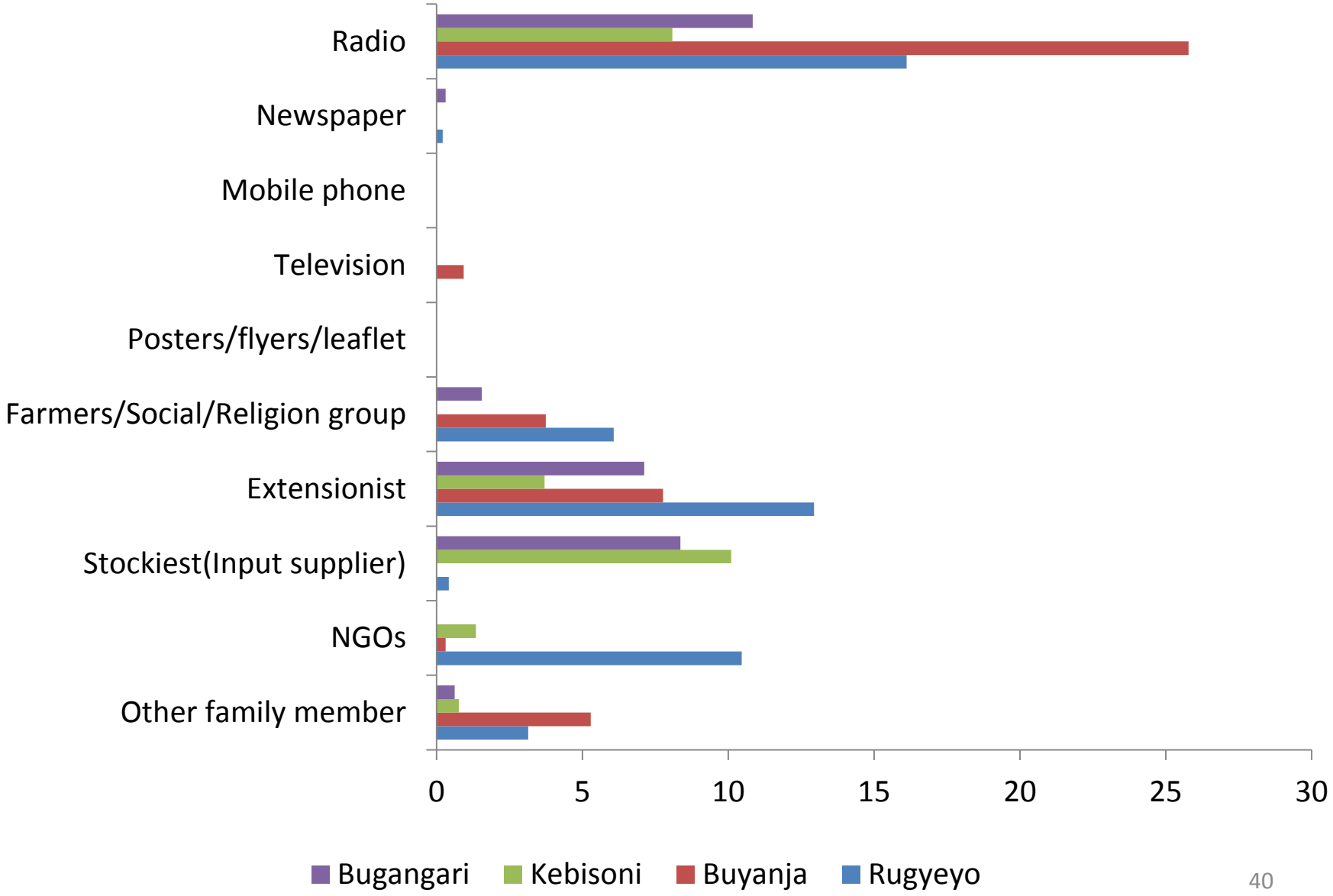


Majority of households in Rugyeyo carry out water treatment by boiling compared to the ones in Rukungiri

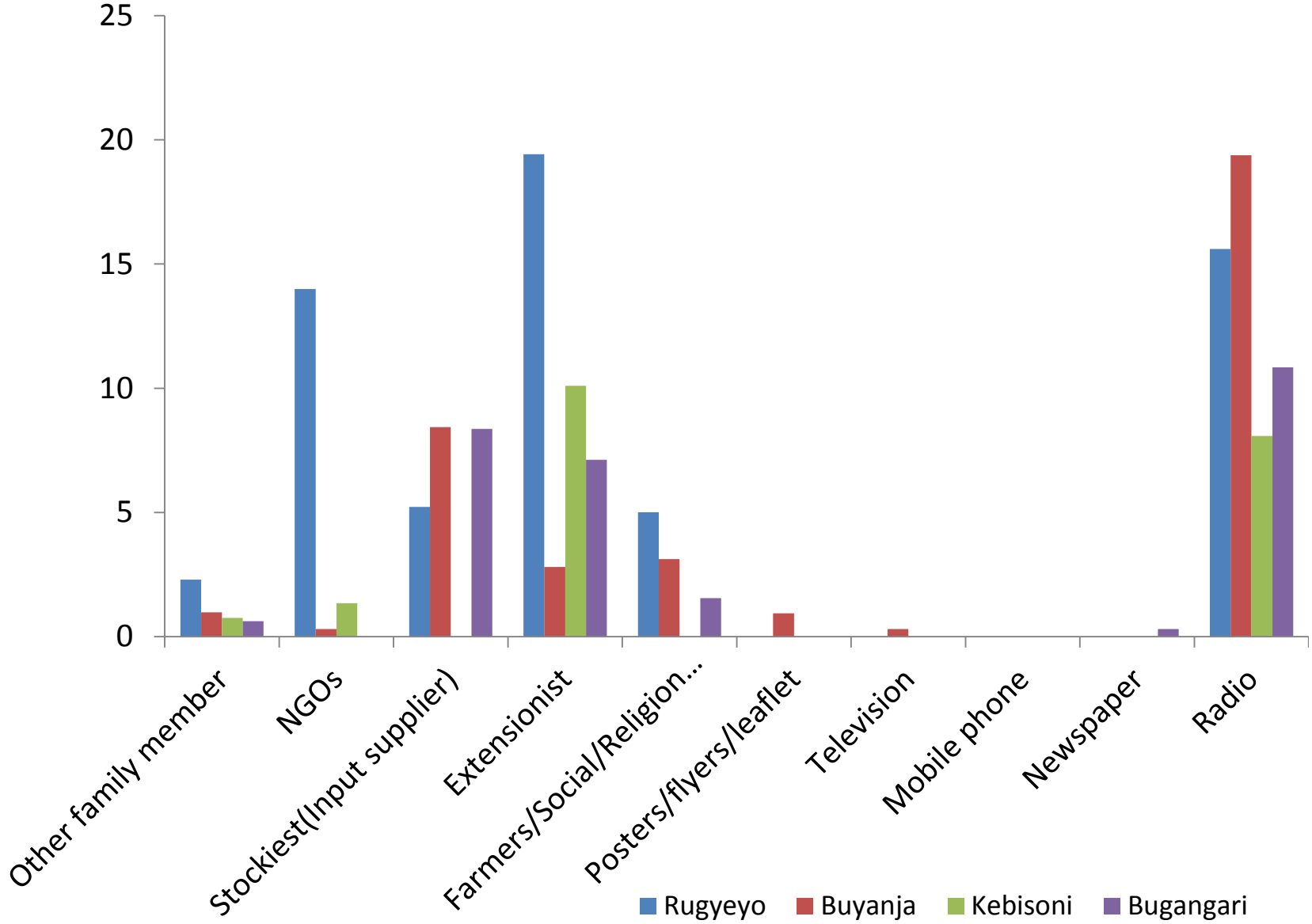
Program exposure



Sources of Agricultural Information

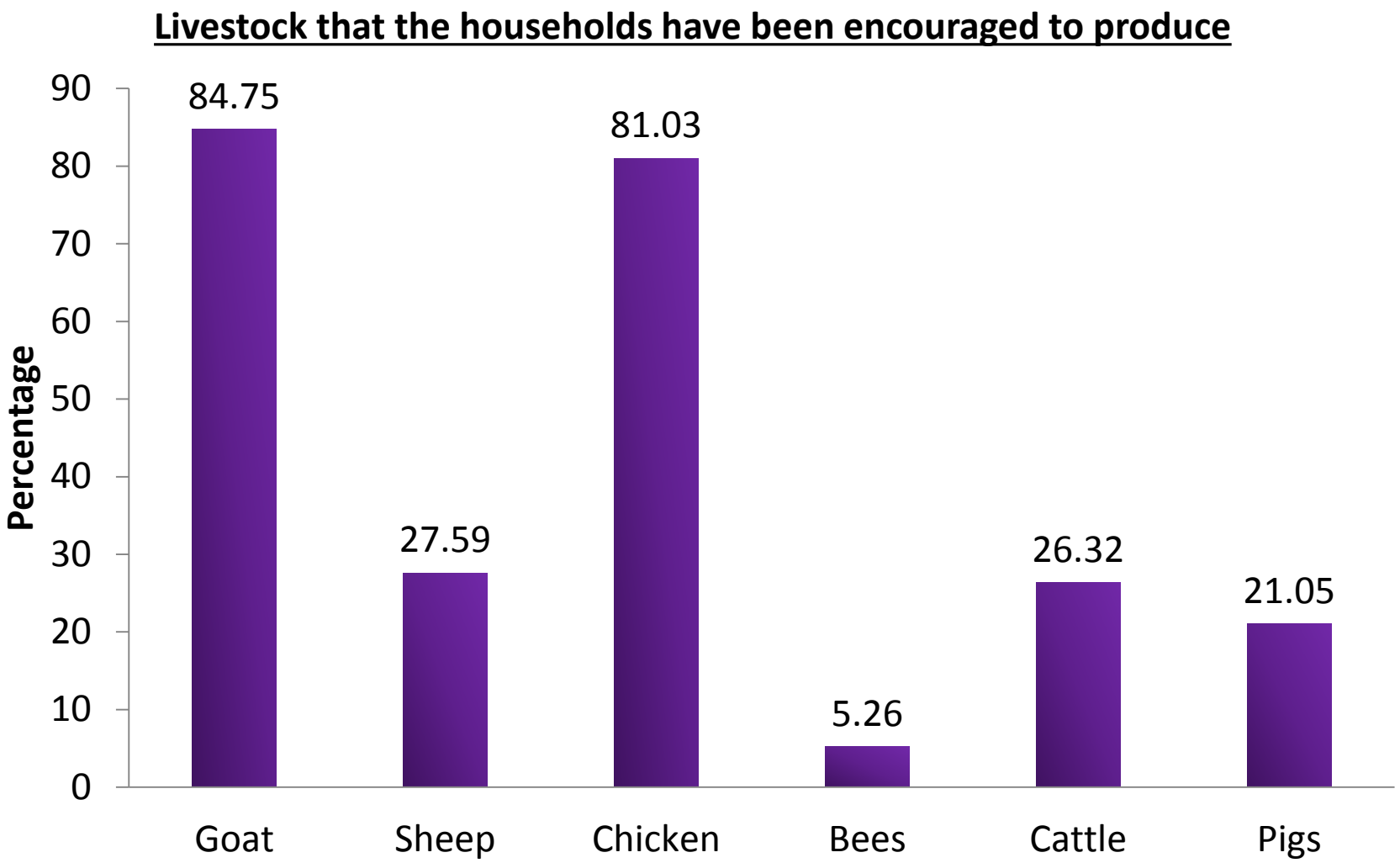


Sources of Nutritional Information

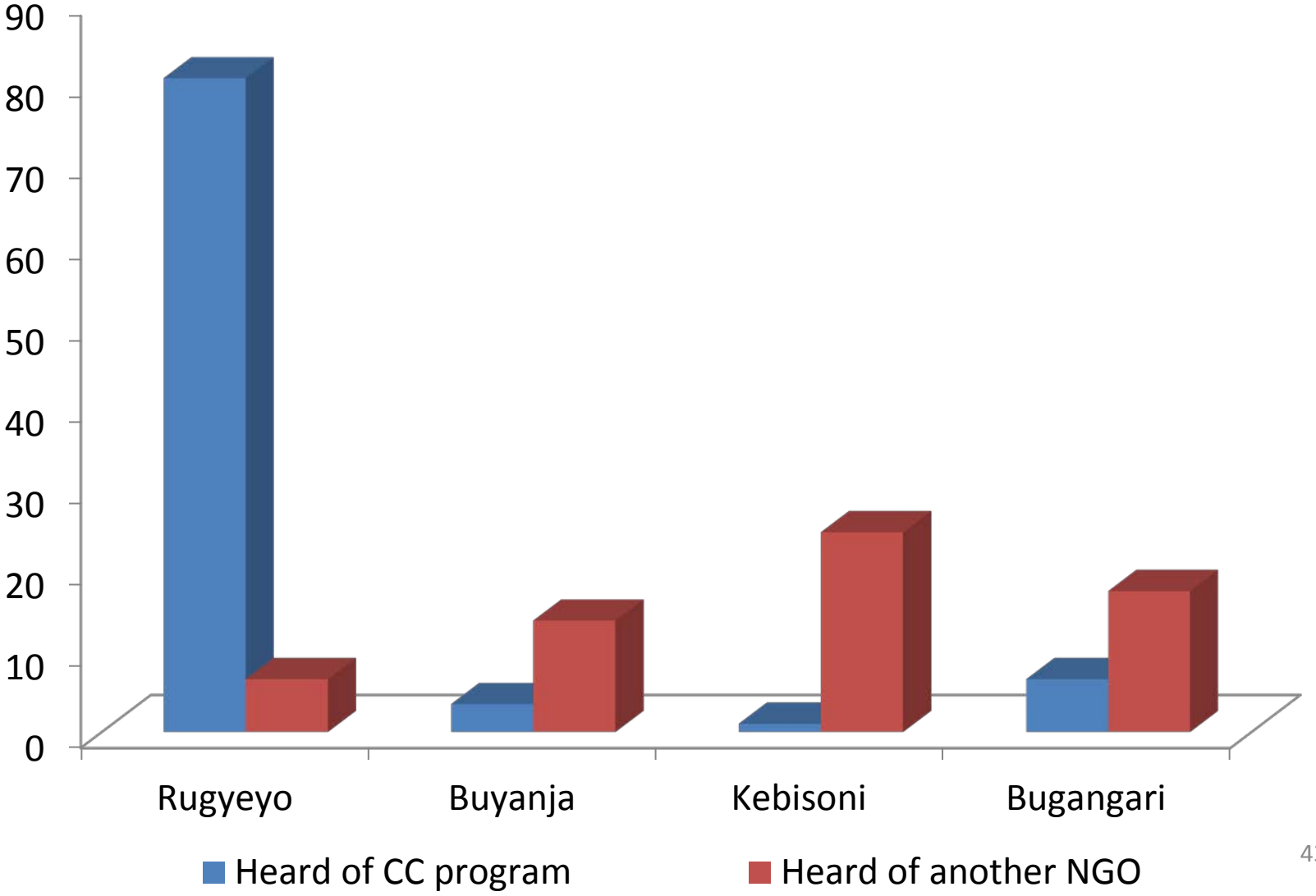


Access to nutritional information is still low. Most households use the radio, stockiest and extension agents. Hhds in rugyeyo use mostly NAADs, and NGOs compared to rukungiri

Social Participation, access to information and program exposure and update (Cont'd



Social Participation, access to information and program exposure and update (Cont'd



Conclusion

- On average Households in Buyanja consume the highest number of food groups.
- Rugeyo consumes the least among household which have the lowest DDS.
- Rugeyo has the highest number of households(40%) that consume the lowest number of food groups

Conclusion

- Households in Rugeyo (26.22%) consume less animal proteins compared to those in Rukungiri
- HHs (79.72, 51.39, 41.8) %in Rukungiri consume more of the vitamin rich foods compared to Rugyeyo
- Based on the Household Food access prevalence, Rugyeyo is the most food secure , it has the highest number of food secure HHds(79.5%)

Conclusion

- Anaemia prevalence highest among 20-29 year olds across all sub-counties

THANK YOU FOR LSTENNG