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**TEGEMEO INSTITUTE OF AGRICULTURAL
POLICY AND DEVELOPMENT**

Comparative analysis of maize with other cereals and tuber crops over the last 20 years

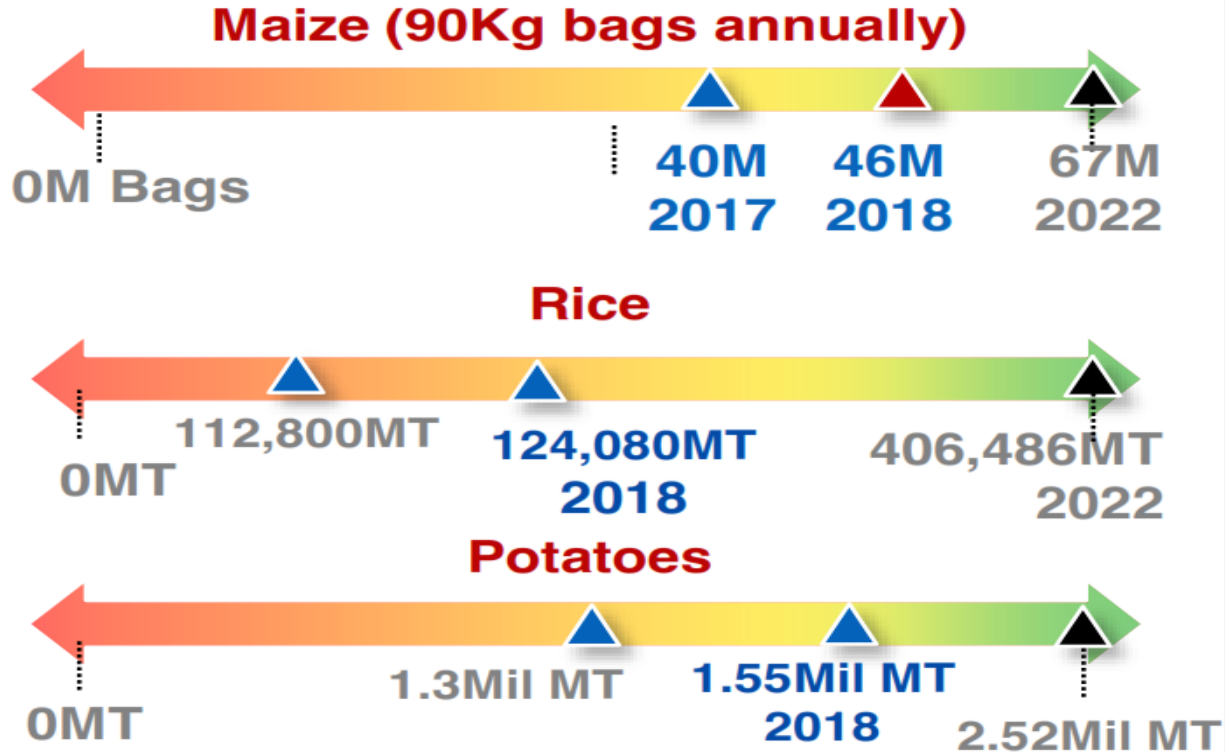
Tim Njagi

Egerton University National Forum Webinar

26th August 2020

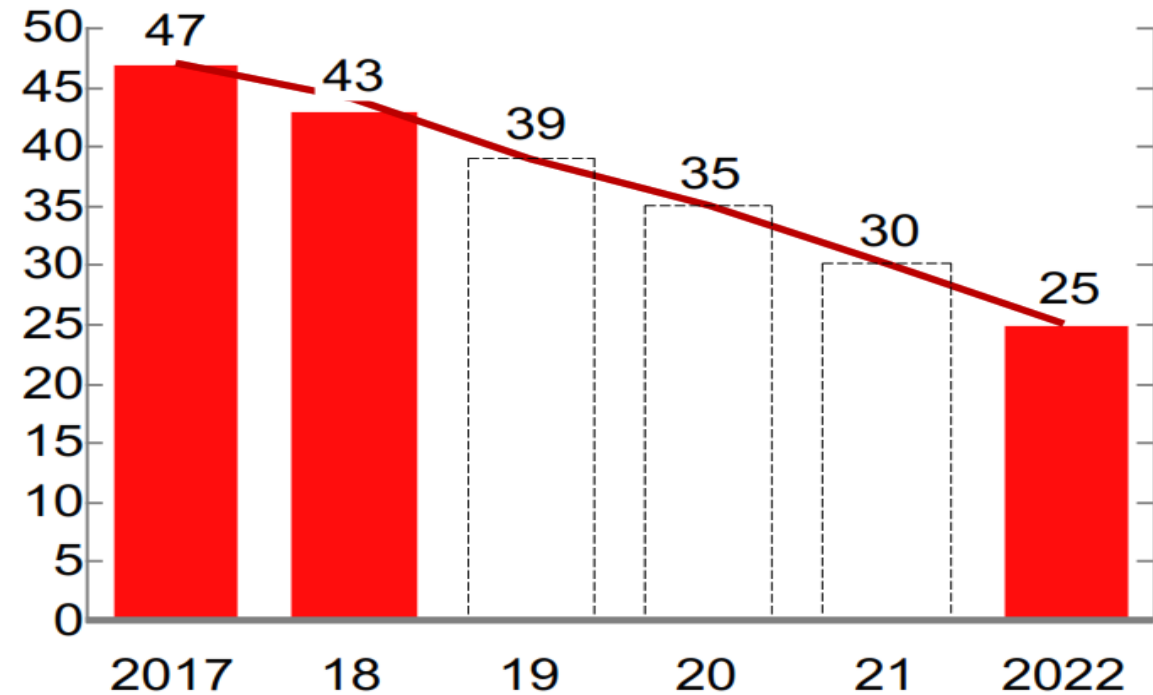
Kenya pursues a self-sufficiency strategy to food security

Food availability – maize, rice and potatoes



Affordability

Cost of food as a percentage of income

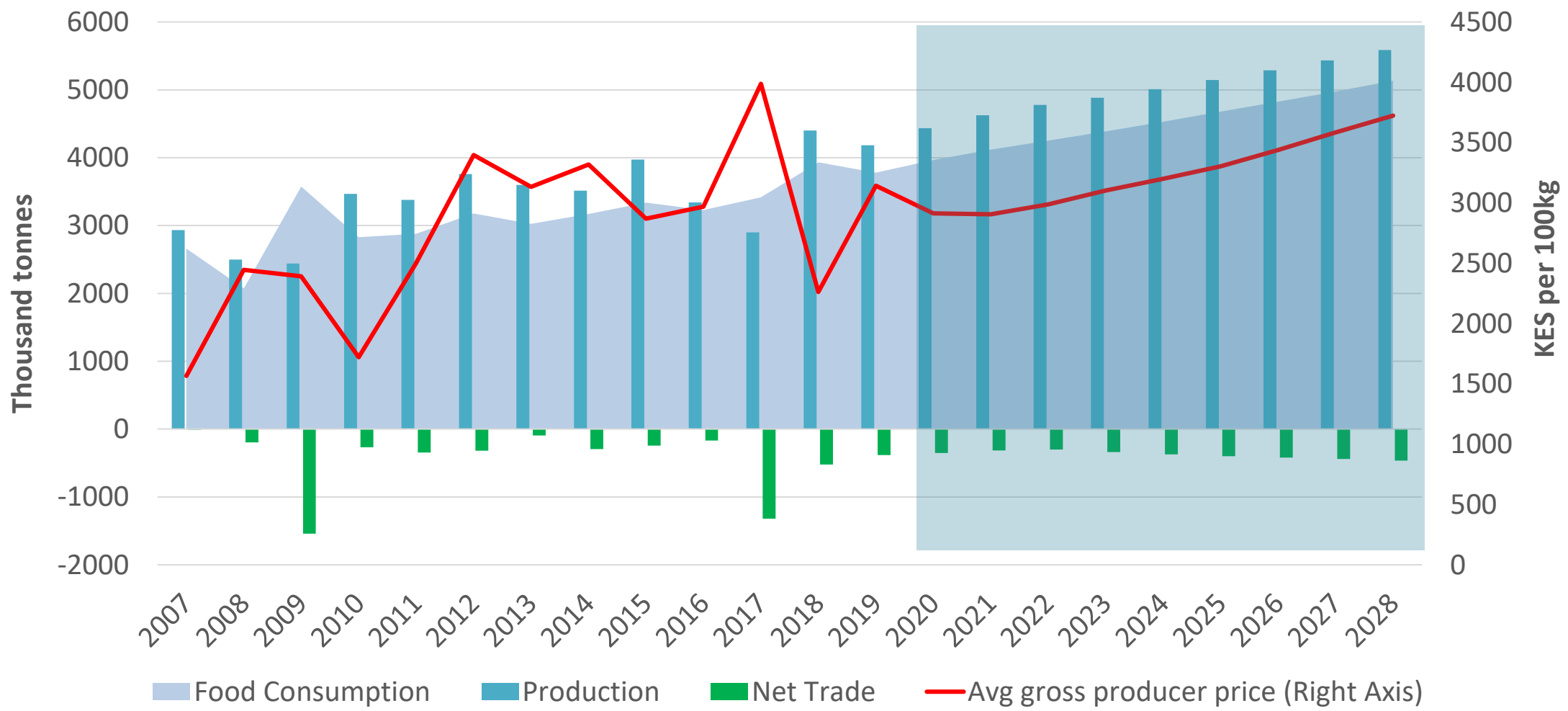


Importance of maize in Kenya

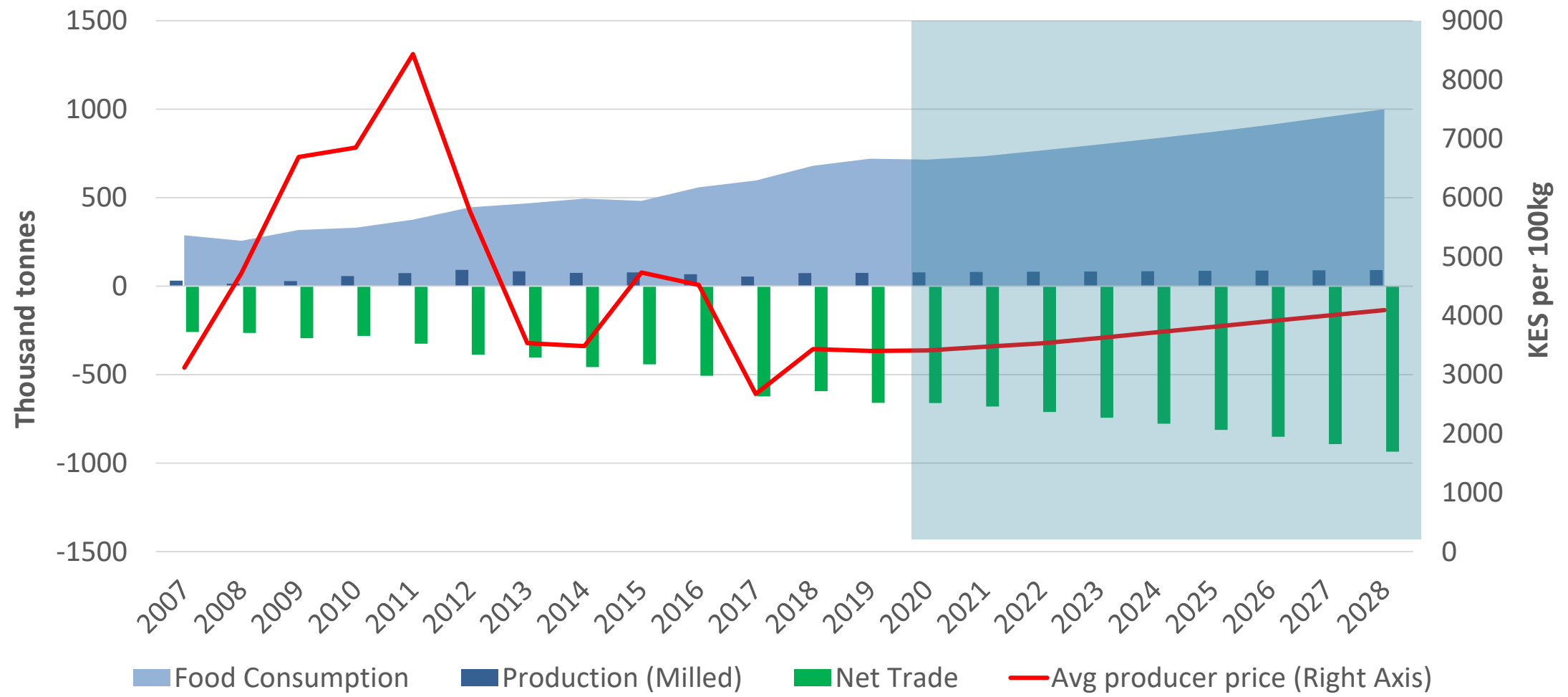
- Maize remains the most important cereal grain in the country
 - 65% of staple food calories (Mohajan, 2014)
 - 40% of total crop area in Kenya (ERA, 2015)
 - With about 75% of agricultural production by smallholder farmers
- Duality around maize
 - Consumers – want to pay as low as possible because its an essential part of the diet
 - Producers – want maximum returns from maize farming
- Maize remains a ‘political’ crop

TRENDS IN PRODUCTION VS OTHER CEREALS

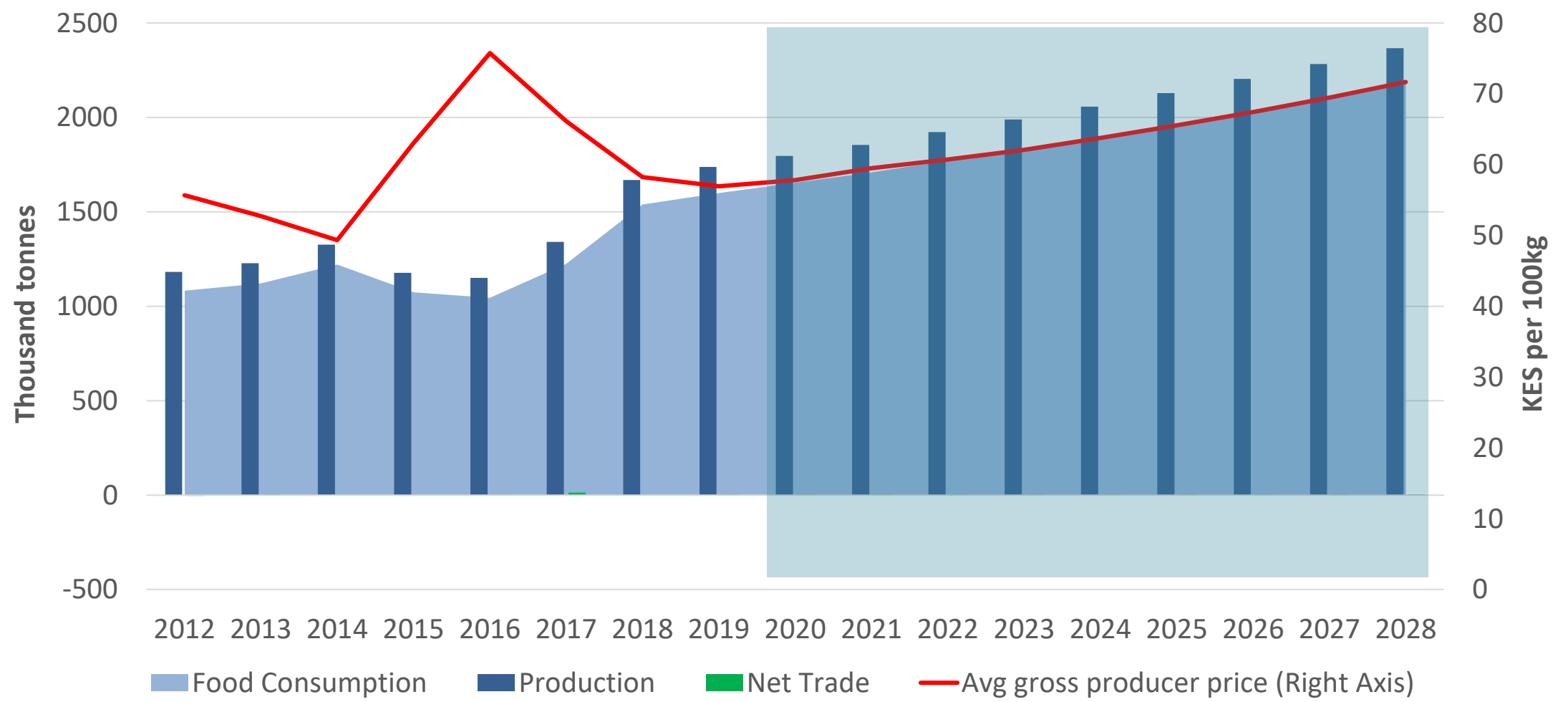
Trends for maize production, consumption, net trade & producer price



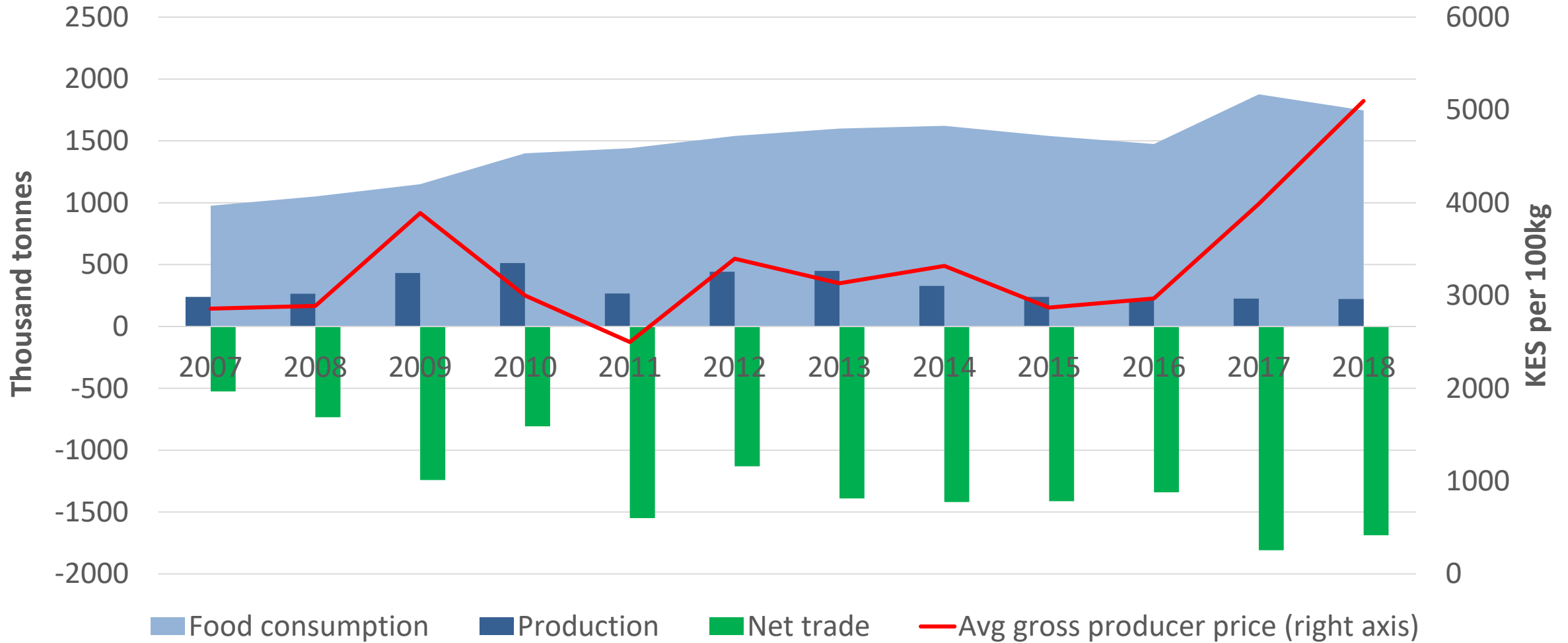
Trends for rice production, consumption, net trade & producer price



Trends for Irish potato production, consumption, net trade & producer price



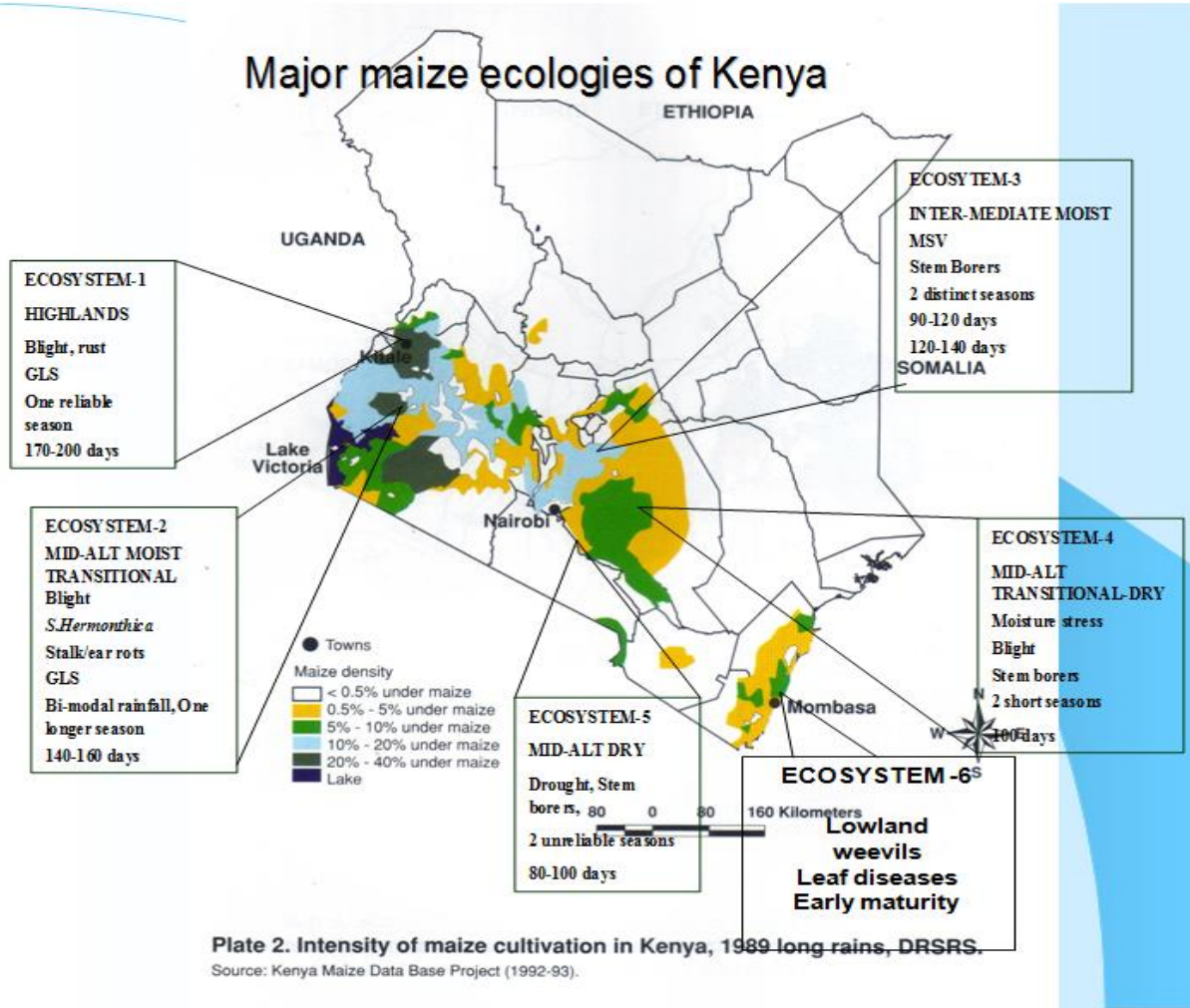
Trends for **wheat** production, consumption, net trade & producer price



CHARACTERIZING MAIZE PRODUCTION VS OTHER CROPS

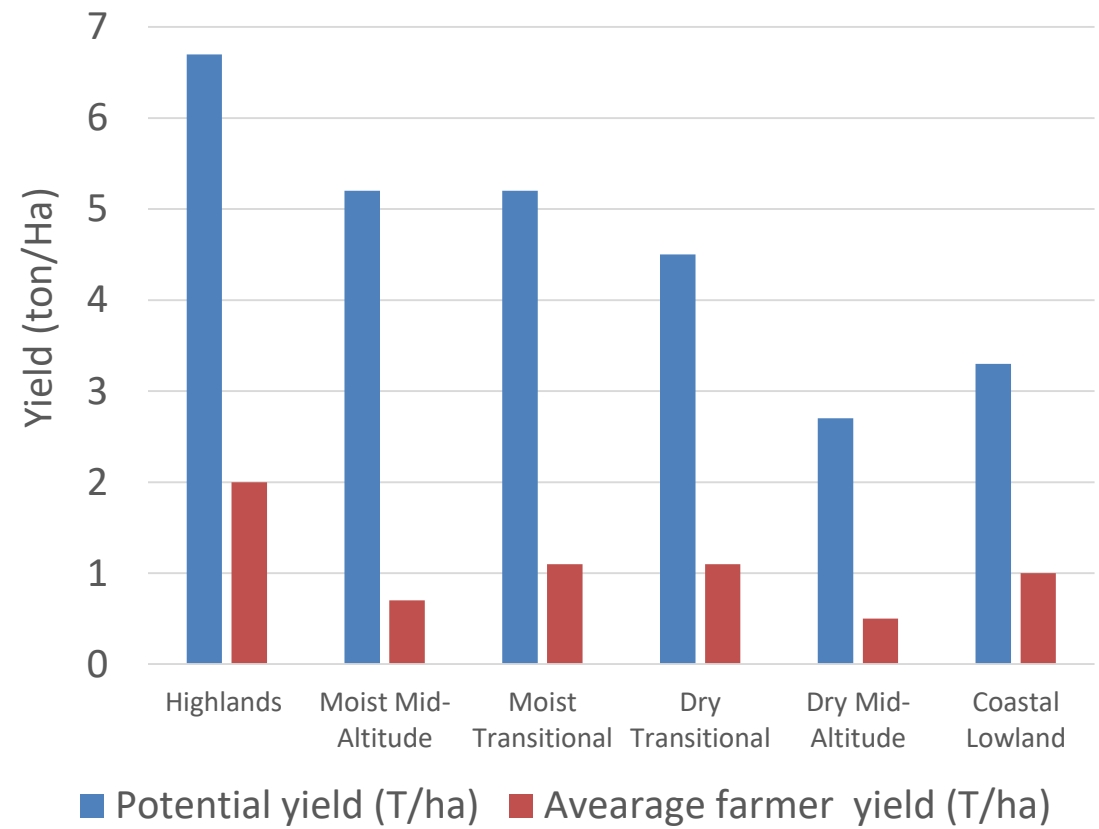
Maize is grown in all ecological zones

Major maize ecologies of Kenya



Source: KALRO, 2018

Yield Gap Analysis



Source: Ochieng et al., 2009 in KALRO, 2018

Production costs for maize (Large Scale)

	Trans		Trans	
	Nzoia	Uasin Gishu	Nzoia	Uasin Gishu
Yield (90 kg bag/acre)		24	20	20
Total cost per acre	33,296	31,284	33,296	31,284
Production cost per bag	1,387	1,331	1,665	1,331
Land rent	10,000	10,000	10,000	10,000
Total production cost with LR	43,296	41,284	43,296	41,284
Total production cost per bag (WLR)	1,804	1,757	2,165	2,064

Market prices: Ksh 1,200-1,500/bag; NCPB Price: Ksh 2,300/bag

Production costs for maize (Small Scale)

	Trans Nzoia	Uasin- Gishu	Nakuru	Trans Nzoia	Uasin- Gishu	Nakuru
Yield (90 kg bag/acre)	17	18	19	15	15	15
Total cost per acre	26,732	27,486	23,170	26,732	27,486	23,170
Production cost per bag	1,572	1,527	1,219	1,782	1,832	1,545
Land rent	10,000	10,000	10,000	10,000	10,000	10,000
Total production cost with LR	36,732	37,486	33,170	36,732	37,486	33,170
Total production cost per bag(WLR)	2,161	2,083	1,746	2,449	2,499	2,211

Market prices: Ksh 1,200-1,500/bag; NCPB Price: Ksh 2,300/bag

Production costs for Irish Potato

	Nakuru	Nyandarua	Nakuru	Nyandarua
Yield(110 kg bag/acre)	12	13	40	40
Total cost per acre	48,234	56,221	48,234	56,221
Production cost per bag	4,020	4,325	1,206	1,406
Land rent	10,000	10,000	10,000	10,000
Total production cost with LR	58,234	66,221	58,234	66,221
Total production cost per bag(WLR)	4,853	5,094	1,456	1,656

Market prices: Ksh 3,500-4,500 /110Kg bag

Production costs for rice (Mwea)

Rice yields (Kg per acre)	2,520
Total cost per acre	71,380
Production cost per Kg	28
Production cost per Kg (Eq for 1Kg milled)	47
Land rent	50,000
Total production cost with LR	121,380
Total production cost per Kg(WLR)	48
Total production cost per Kg (WLR) (Eq for 1Kg milled)	80

Market prices: paddy - Ksh 50/kg; Milled: Ksh 120/Kg

Production costs for rice (Ahero)

Rice yields (Kg per acre)	1,440
Total cost per acre	43,377
Production cost per Kg	30
Production cost per Kg (Eq for 1Kg milled)	50
Land rent	10,000
Total production cost with LR	53,377
Total production cost per Kg(WLR)	37
Total production cost per Kg (WLR) (Eq for 1Kg milled)	62

Market prices: paddy - Ksh 40/kg; Milled: Ksh 80/Kg

Production costs for wheat (Medium Scale)

	Nakuru	Nakuru
Yield (90 kg bag/acre)	22	15
Total cost per acre	31,394	31,394
Production cost per bag	1,427	2,093
Land rent	10,000	10,000
Total production cost with LR	41,394	41,394
Total production cost per bag (WLR)	1,882	2,760

Market prices: NCPB Price: Ksh 3,200/bag

Production costs for Sorghum (Small scale)

	Local	Contracted
Yield (kg/acre)	200	1,350
Total cost per acre	23,440	26,800
Production cost per kg	117	20
Land rent	5,000	5,000
Total production cost with LR	28,440	31,800
Total production cost per kg (WLR)	142	24

Market prices: Ksh 30/Kg

Conclusion

- Commercial orientation of farmers is necessary for improving agricultural production & productivity
 - Markets, play a significant role in providing ‘right’ incentives
- Farmers need to be incentivized to cultivate crops that are best suited for their areas
 - Boost competitiveness
- Public policy should be reoriented to strengthen markets, and support producers to be competitive
 - Investments in research & extension
 - Public goods that help producers overcome market barriers

Thank you!