

## The Rutgers University Policy Research Consortium

# Contribution of Policy Change on Maize Varietal Development and Yields in Kenya

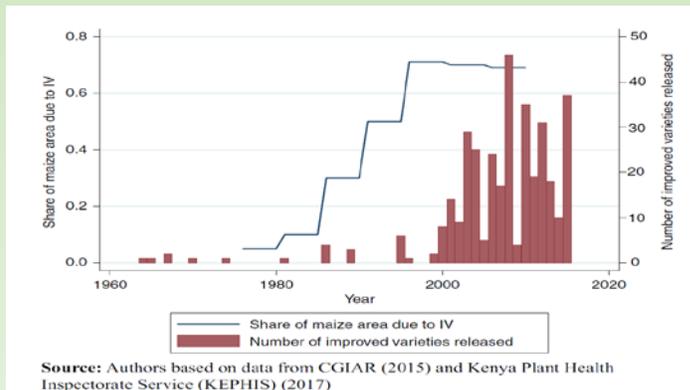
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Type of Seed Company	AD	ET	GH	KE	ML	MW	MZ	NG	TD	UG	ZM	ZW	Total
Small national (< 500t)	2	5	3	2	7	13	15	14	4	6	4	4	105
Medium to large national	4	1	2	2	1	1	1	1	1	1	1	1	14
African Regional	1	1	2	1	1	2	1	1	1	1	1	1	15
Global	1	1	2	1	1	1	1	1	1	1	1	1	15
Grand Total	2	11	13	15	11	12	12	17	13	20	14	12	159

### Purpose

Since the start of seed and other market reforms in the 1990s, the annual number of improved varietal releases for maize in Kenya has increased substantially. Prior to the reforms, private firms were restricted in introducing new varieties, could not protect their intellectual property and farmers had to rely exclusively on public sector.



Reforms have resulted in increased private firm entry with release of new varieties, but also stimulated increase in varietal releases by the public sector.

### Approach

The yield model was estimated to that relate national maize yields to key input policy variables. With the data set put together for years 1990s to 2012/13, the authors employ a two-stage least square regression, as one of the explanatory variables – the number of varietal releases – is likely endogenous with yield.

Policy variables such as public R&D, the number of plant breeder's rights issued, and the years since private varieties have been introduced as instrument variables to estimate their influence new varietal Releases, in turn on yields.

### Findings

Empirical analysis show that policy changes to the introduction of IPRs had an impact on the number of improved maize varieties released. Yet the outcomes of the policy change such as the number of varieties and the share of area under improved varieties has no impact on increasing maize yields. We argue that continued use of older varieties and dominance of parastatal; with new varieties may not have the assumed yield advantage

	1962-1982	1983-1999	2000-2014	1962-2014
Yield (%)	2.99	-0.86	1.72	1.40
Area (%)	2.89	2.28	2.62	2.62
Production (%)	5.97	2.27	3.91	4.20
Varieties released	7	16	294	317

Sources: Yield, area and production growth rates calculated from FAO (2018). Varietal release data from Kenya Plant Health Inspectorate Service (KEPHIS) (2017)

Provides evidence that while policy change may lead to new varietal development and release, its aggregate productivity impacts may be limited without additional reforms and intervention.

Further work in progress is to see the impact of new institutional mechanisms of varietal research/releases (e.g. DTM, AATF etc) and yield impacts across agro ecologies rather at aggregated levels..