

# Overview of Tropical Legumes Projects (TL I, TL II, TL III) - the Chickpea Scenario in Ethiopia

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## Introduction

- Chickpea is one of the most important pulses in the highlands and semi-arid regions of Ethiopia.
- In the 2014/15 main season alone 458,682.3 t was produced by 1,081,755 smallholder farmers on 239,751.4 ha.
- A decade ago, the productivity of chickpea was <1 t/ha, mainly due to low yield potential of landraces, poor agronomic practices and a/biotic constraints.
- To tackle these production constraints, TL I & II projects were launched in 2007 led by ICRISAT with financial support from the Bill & Melinda Gates Foundation.
- TL I mainly focused on enhancing basic research through developing genetic resources for plant breeding.
- TL II utilized the genetic resources developed in TL I for chickpea crop improvement
- TL II also developed sustainable chickpea seed production and delivery systems.
- TL I and II were completed in 2014 and TL III was launched in 2015 to scale up/out the successes of TL I & II.
- The projects have been implemented by Debre Zeit and eight partner agricultural research centers.

## Methods

- Technology development and dissemination in chickpea production were improved.
- Hundreds of improved chickpea breeding lines were introduced from ICRISAT every year.
- The introductions were evaluated for adaptation to local production conditions.
- They were either released as new varieties or used to improve local landraces for traits like yield, seed size, disease resistance, and drought and heat tolerance.
- Farmer Participatory Variety Selection (FPVS) was used to build confidence on new varieties for enhanced uptake.
- Varieties selected on the FPVS were demonstrated on larger plots and visited by large groups of farmers on field days.
- The projects supported establishment of 'farmer seed producer associations'.
- Necessary technical backstopping was extended to the seed associations to mitigate seed shortage.
- Technologies accepted by the farmer were scaled up by providing seeds to farmers on revolving basis.

## Results

- Variety Development:** The project contributed to the development and release of 7 chickpea varieties at national and regional level. 5 candidate varieties are on verification for release.

### Improved chickpea varieties released since the inception of the projects in 2007.

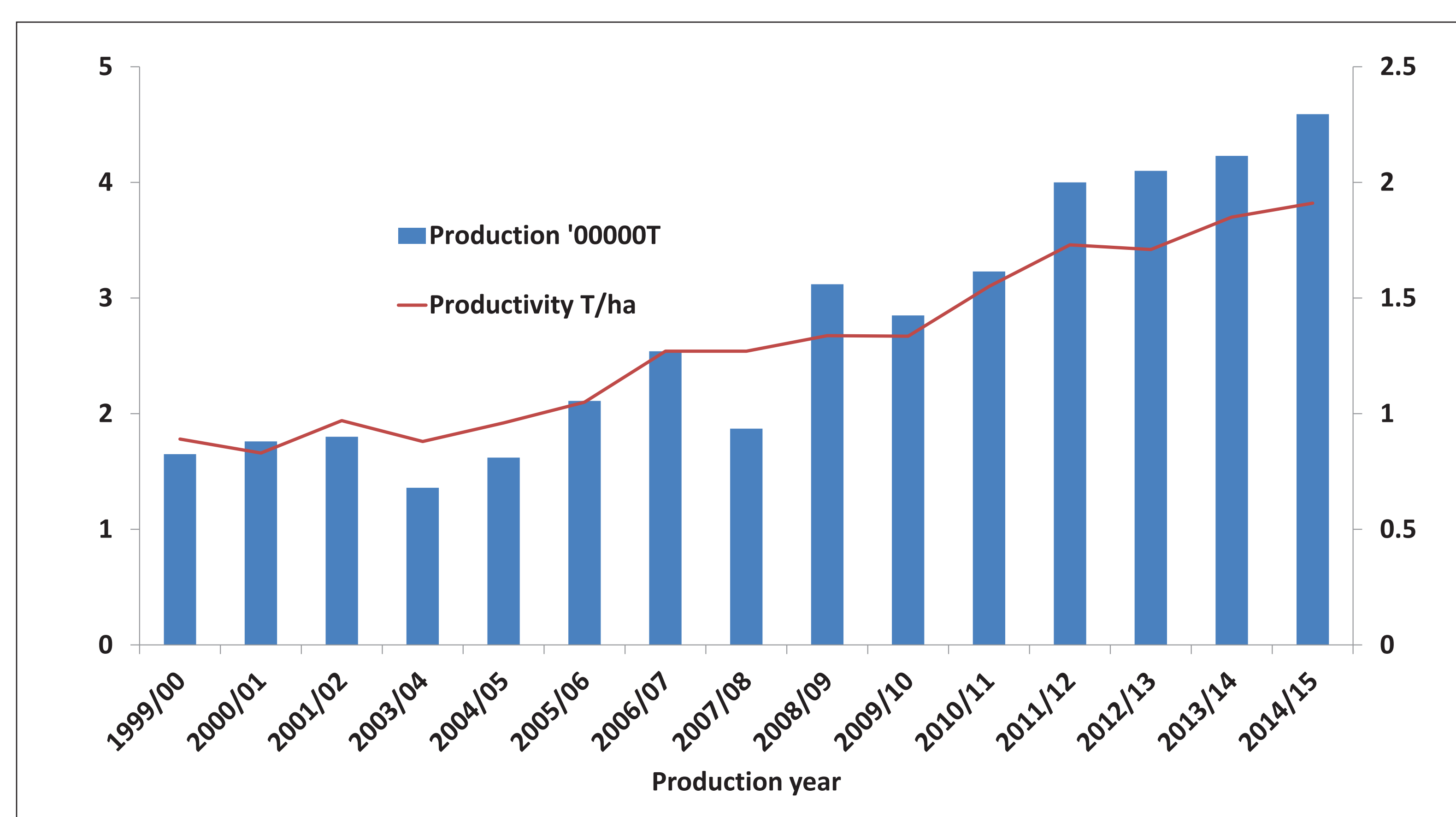
Local name	Pedigree	Type	Release year
Monino	Acos Dubie	Kabuli	2009
Minjar	ICCV 03107	Desi	2010
Akuri	ICCV 03402	Kabuli	2011
Kasech	FLIP 95-31C	Kabuli	2011
Kobo	ICCV-01308	Kabuli	2012
Teketay	CJG-74 x ICCL-83105	Desi	2013
Dalota	ICCX-940002	Desi	2013

- 136 FPVS and 2209 Technology Demos were conducted in 58 districts of 17 zones in 4 regions (Amhara, Oromia, Tigray and SNNP).
- Seed systems: Nearly 20 Farmer seed producer associations were formed and/or strengthened
- The associations are provided with trainings, early generation seed and technical support from the research system.
- These associations became major sources of chickpea seed for the country.
- This resulted in a considerable increase of the production and supply of chickpea seed (certified/QDS) over the years.

### Chickpea seed (certified/QDS) produced by the formal and the informal seed system.

Variety	Amount of Certified/QDS (t)								Total
	2008	2009	2010	2011	2012	2013	2014	2015	
Arerti	500	859	1192	1283	1714	1900	2620	1726	11794
Shasho	88.5	129.6	120.8	186	239.6	217	396.7	54.1	1432.3
Mariye	0.2	0.3	0	3	1.8	1.3	2.9		9.5
Habru	38	69.4	66	111	148.1	194.9	233	208.6	1069
Ejere	1.5	2	2.5	6.2	6.7	9.3	6.4	78.6	113.2
Natoli				1.7	2.3	2.8	4.4	4.2	15.4
Kutaye	1			3.6	5.2	3.8	6.8	1.6	22
Teji	1.5	2	2.5	6.1	4.9	6.8	6.4		30.2
Chefe	0.5	2.5	3	4		5			15
Monino				2.6	3.3	4.5	8.8	65	84.2
Minjar						1.8	4.4	1.7	7.9
Teketay								6.6	6.6
Dalota								8.2	8.2
Akuri								3	3
Mastewal								1.5	1.5
Total	631.2	1065	1387	1608	2126	2347	3290	2159	14612

- There was >60% increase in production and >50% increase in productivity of chickpea over the project period and an estimated 30% adoption of improved varieties



National chickpea production/productivity on smallholder farmers' fields in the main season.

## Conclusions

Strong partnerships among ICRISAT, EIAR, Regional Agricultural Research Institutes (9 centers), farmer seed producer associations, national and regional seed enterprises and other projects enabled TL projects to address constraints in chickpea production in major growing areas of Ethiopia.

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