

Chefe (ICCV 92318) – A New Kabuli Chickpea Variety for Ethiopia

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Ethiopia is the largest chickpea growing country in Africa, with a share of about 37% in area and 48% in production. During 2003/2004, Ethiopia produced 195,800 t of chickpea from an area of 176,554 ha (FAOSTAT 2004). There has been an increase of about 10% in the area and 42% in the production of chickpea during the past decade (1994/95 to 2003/04). Most of the chickpea production is used for domestic consumption. However, there has been a substantial export of chickpea by Ethiopia during the past five years, with the highest of 48,549 t (valued at US\$14.7 million) during 2002 (FAOSTAT 2004).

The Debre Zeit Agricultural Research Center (DZARC) is the premier institute for chickpea research in Ethiopia. It has collaborated with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, India, and the International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria, in chickpea improvement and released eight chickpea varieties in Ethiopia. Of these, three (*DZ 10-4*, *DZ 10-11*, and *Dubie*) were developed from its own breeding materials, four (*Mariye*, *Worku*, *Akaki* and *Shasho*) from the breeding materials supplied by ICRISAT, and one (*Arerti*) from the breeding materials supplied by ICARDA. Three of these varieties (*DZ 10-4*, *Shasho* and *Arerti*) are *kabuli* type and the remaining are *desi* type.

The Ethiopian chickpea production is predominated by *desi* chickpea (about 95%). However, in recent years, there has been an increase in the interest of farmers in growing large-seeded *kabuli* varieties due to their higher price in the market. The market price for one ton *kabuli* chickpea currently varies from 3000 to 4000 Birr (US\$344 to 459) depending on the seed size, while the *desi* chickpea is sold at about 2000 Birr (US\$230). The first *kabuli* chickpea variety released in Ethiopia (year 1974) was *DZ 10-4* with a very small seed size (10–11 g

100 seed⁻¹) and is now almost out of cultivation. The other two *kabuli* varieties, *Arerti* and *Shasho*, with medium (26 g 100-seed⁻¹) and large seeds (30 g 100-seed⁻¹), respectively were released in 1999.

ICCV 92318, a breeding line developed from a 3-way cross (ICCV 2 x Surutato) x ICC 7344 at ICRISAT, Patancheru, was received by DZARC from ICRISAT along with many other advanced breeding lines. After preliminary yield evaluation at the station, it was selected for multilocation evaluation along with the controls *DZ 10-4* (local check) and *Arerti* (standard check). The trials were conducted at seven locations each during 1999/2000 and 2000/2001 and at four locations during 2001/2002. The overall average yield of ICCV 92318 was 2546 kg ha⁻¹ against 2864 kg ha⁻¹ for the standard check *Arerti* and 2093 kg ha⁻¹ for the local check *DZ 10-4* (Table 1). Though ICCV 92318 was not superior to *Arerti* in yield, it was selected for release primarily because of its attractive and larger (35 g 100-seed⁻¹) seeds (Fig. 1) as compared to *Arerti* (26 g 100-seed⁻¹) and high resistance to fusarium wilt. It was released as “Chefe” in 2004 by the National Variety Release Committee. Chefe is one of the research stations of DZARC where chickpea



Figure 1. Seed of kabuli chickpea variety Chefe.

Table 1. Mean seed yield (kg ha⁻¹) of chickpea variety (ICCV 92318) as compared to standard check (Arerti) and local check (DZ-10-4) across locations and over years.

Variety	Location									Mean
	Minjar	Debre Zeit	Akaki	Chefe Donsa	Enewari	Adet	Sirinka	Ambo	Arsi Negale	
1999/2000										
ICCV 92318	1231	3274	4778	3129	1879	2515	3117	-	-	2784
Arerti	1728	3844	4608	3091	1669	3867	1989	-	-	2971
DZ 10-4	501	2057	3892	2614	1790	3338	1519	-	-	2244
2000/2001										
ICCV 92318	2739	3513	3861	3542	2794	1543	-	2010	-	2858
Arerti	3804	3730	4054	4321	3320	1426	-	2915	-	3367
DZ 10-4	3173	3997	2913	3524	2580	1455	-	1469	-	2730
2001/2002										
ICCV 92318	1247	1493	2749	-	-	-	-	-	2499	1997
Arerti	1397	1791	2953	-	-	-	-	-	2875	2254
DZ 10-4	1066	1069	1329	-	-	-	-	-	1754	1305
Over all mean										
ICCV 92318	1594	2760	3798	3336	2337	2029	3117	2010	2499	2546
Arerti	2310	3122	3872	3706	2495	2647	1989	2915	2875	2864
DZ 10-4	1580	2374		3069	2185	2397	1519	1469	1754	2093

productivity is always very high.

A high preference by farmers was observed for the new variety *Chefe* during on-farm trials because of its large pods. We presume that the increased price in the international market for the large-seeded *kabuli* varieties will help in faster adoption of the variety. Also there is a large market for chickpea immature fresh seeds, for human consumption in Ethiopia and large-seeded varieties are preferred for this purpose. Thus, the new variety also has potential for this local market. Ethiopian Seed Enterprise and private commercial farmers are multiplying this variety for further distribution as seed and also for export.

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Reference

FAOSTAT. 2004. <http://faostat.fao.org/faostat/> (last updated 20 December 2004).