
Economic Importance of Chickpea: Production, Value, and World Trade

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Fred J. Muehlbauer and Ashutosh Sarker

Abstract

Chickpea is a valued crop and provides nutritious food for an expanding world population and will become increasingly important with climate change. Production ranks third after beans with a mean annual production of over 10 million tons with most of the production centered in India. Land area devoted to chickpea has increased in recent years and now stands at an estimated 13.5 million hectares. Production per unit area has slowly but steadily increased since 1961 at about 6 kg/ha per annum. Over 1.3 million tons of chickpea enter world markets annually to supplement the needs of countries unable to meet demand through domestic production. India, Australia, and Mexico are leading exporters. Chickpea is comprised of Desi and Kabuli types. The Desi type is characterized by relatively small angular seeds with various coloring and sometimes spotted. The Kabuli type is characterized by larger seed sizes that are smoother and generally light colored. Dal is a major use for chickpea in South Asia while hummus is widely popular in many parts of the world. Research efforts at ICRISAT, ICARDA, and national programs have slowly but steadily increased yield potential of chickpea germplasm.

F.J. Muehlbauer
U.S. Department of Agriculture, Washington State
University, Pullman, WA 99163, USA

A. Sarker (✉)
ICARDA South Asia & China Regional Program,
New Delhi 110012, India
e-mail: a.sarker@cgiar.org

2.1 Introduction

This chapter examines chickpea production, value, and trade on a global, regional, and country basis to determine trends in production

and product availability through domestic and international export markets. World, regional, and country production, and demand data are reviewed to determine trends and future expectations for the chickpea crop and its importance in world trade. Data for this chapter was obtained from the FAOSTAT database provided by the Food and Agriculture Organization of the United Nations (2015) that provides country and global estimates of crop production, area harvested, yields, exports, imports, and consumption since 1961. The data is used to identify trends in overall production, yields, value, and consumption of chickpea on a worldwide basis.

2.2 Production, Productivity, and Area

Worldwide, chickpea ranks third among the pulse crops and accounting for 10.1 million tons annually. This ranking places chickpea behind beans (21.5 million tons) and peas (10.4 million tons) with mean annual production of 10.1 million tons from 2004 to 2013 (Table 2.1). Taken together, annual combined production of peas and chickpea is nearly equal to that of beans, an indication of their overall importance. These three pulses (beans, peas, and chickpeas) account for about 70% of global pulse production with chickpea accounting for approximately 17% of the total annually.

Production of chickpea in terms of harvested area from 1961 to 2013 ranged from a low of 8.9

million hectares in 1981 to a high of 13.5 million hectares in 2013 (Fig. 2.1). Earlier production trends from 1961 to 2001, in terms of area harvested, was somewhat static or slightly declining; however, yield increases began to have an impact on total production starting in the late 1900s. Steady increases in production appear in the early 2000s and continue to the present, and especially since 2004.

Chickpea yields have been steadily increasing globally since 1961 (Fig. 2.2) and trending to increases of over 6 kg/ha per annum. This positive development is likely the result and benefits of sustained research programs toward the development of improved germplasm and higher yielding varieties characterized by improved disease resistance and adaptation to environment. Also important are factors such as improved seed sources, seed supplies, and overall management practices. Expanded production in more productive environments also may account for these consistent yield increases. The expanded production in developed countries such as Australia, Canada, and the USA appears to have had a positive influence on mean yields worldwide. However, with the majority of production centered in South Asia and India in particular, production increases in South Asia have clearly had an impact globally.

Production increases have been pronounced in the most recent 10-year period (Fig. 2.3). Area harvested and tonnage produced have expanded starting in 2004 leading up to 2013 where global production reached an all time high of 13.5

Table 2.1 Mean annual global production of pulse crops 2004–2013

Pulse	Production (1000t)
Beans	21,556
Peas	10,427
Chickpeas	10,160
Cowpeas	5374
Faba beans	4156
Lentils	3982
Pigeon peas	3949
Other pulses ^a	5936
Total pulses	59,606

^a Data for other pulses was obtained by difference between total pulse production as reported by FAOSTAT (2015) and the total of the seven pulse crops listed in this table
Source FAOSTAT (2015)

Fig. 2.1 Chickpea worldwide, area harvested (million hectares; *Filled diamond*), and production (million t; *Filled square*) from 1961 to 2013 *Source* FAOSTAT (2015)

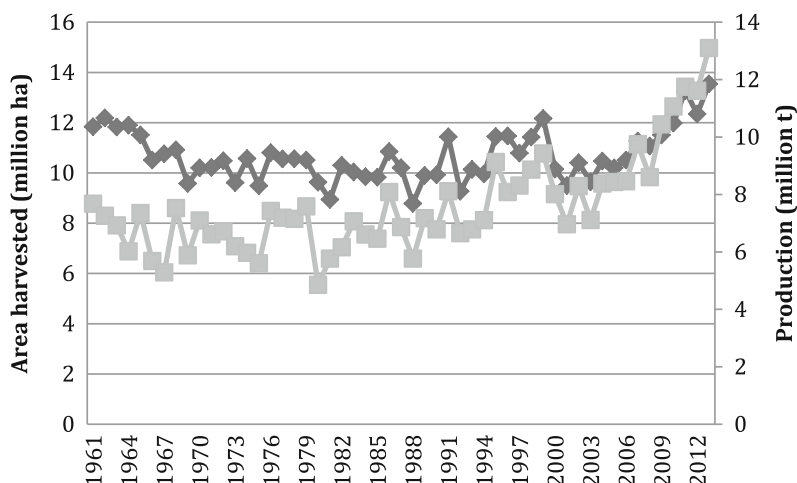
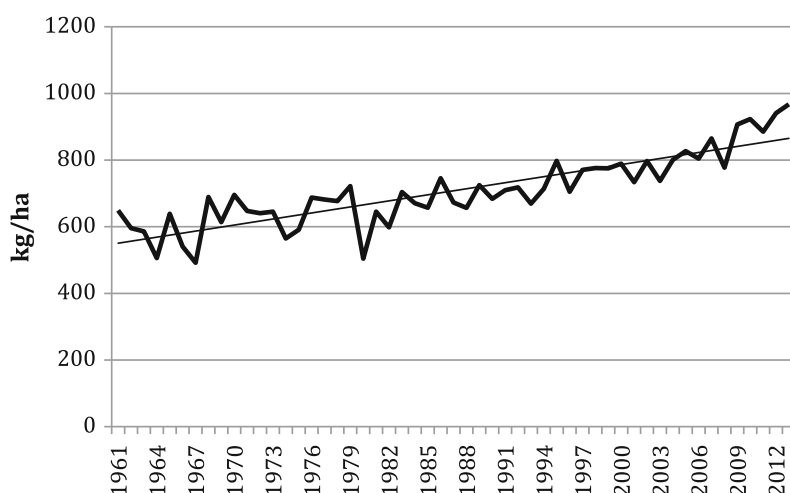


Fig. 2.2 Annual worldwide chickpea yields (kg/ha) and trend line from 1961 to 2013. *Source* FAOSTAT (2015)



million tons from nearly 12 million hectares. Gains in yield per hectare and area harvested are positively impacting overall production.

Chickpea is produced in over 50 countries with India having the largest production and accounting for over 70% of total world production. Figure 2.4 illustrates the dominance of India in chickpea production and the relative importance of the next most important producers. Pakistan and Iran, the next most important producers, account for 10 and 5% of world production, respectively. Other major producing countries such as Turkey and Australia account for 4 and 3%, respectively; while Ethiopia having greatly increased production in recent years now accounts for over 2% of world production. Other

important producing countries include Malawi, Mexico, Morocco, and Syria.

Mean yields of chickpea have varied widely among producing countries and range from relatively low yields averaging 500–600 kg/ha in Iran, Malawi, Morocco, Pakistan, and Syria to relatively high yields in Ethiopia and Mexico (Fig. 2.5). India, the largest producer has had stable mean yields of about 900 kg/ha. The high yields in Mexico are largely due to the fact that most of the crop is irrigated and grown over the cool winter season.

Area harvested, mean yields, and total productivity of chickpea producing countries in regions of the world are shown in Table 2.2. Ethiopia has emerged as the major producing

Fig. 2.3 Chickpea production worldwide, area harvested (million hectares; Filled diamond), and tons (million t; Filled square) from 2004 to 2013. *Source* FAOSTAT (2015)

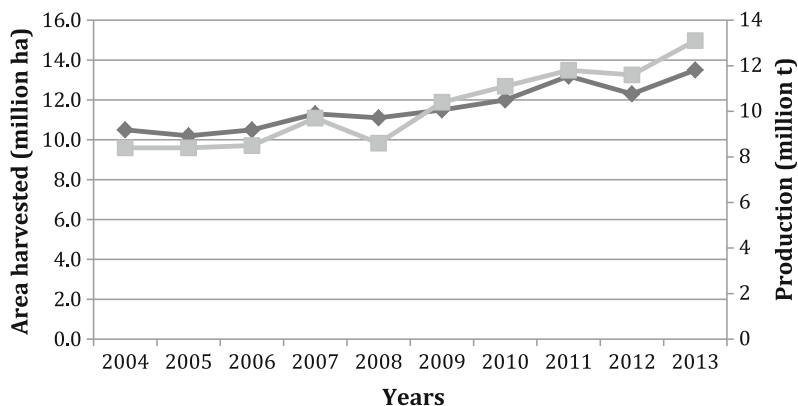


Fig. 2.4 Relative importance of the 10 leading chickpea producing countries. *Source* FAOSTAT (2015)

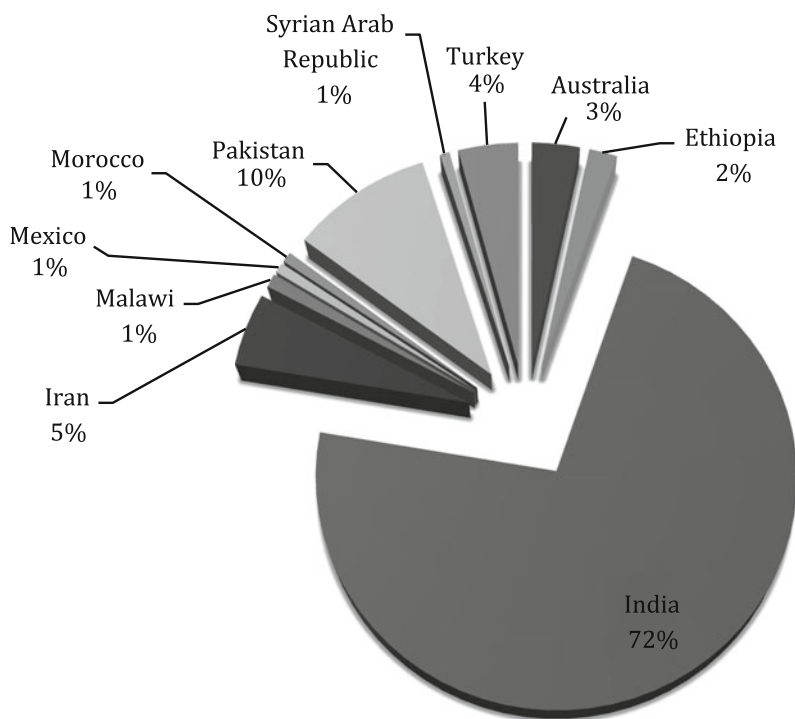


Fig. 2.5 Mean yields (kg/ha) from 2009 to 2013 for the 10 leading chickpea producing countries. *Source* FAOSTAT (2015)

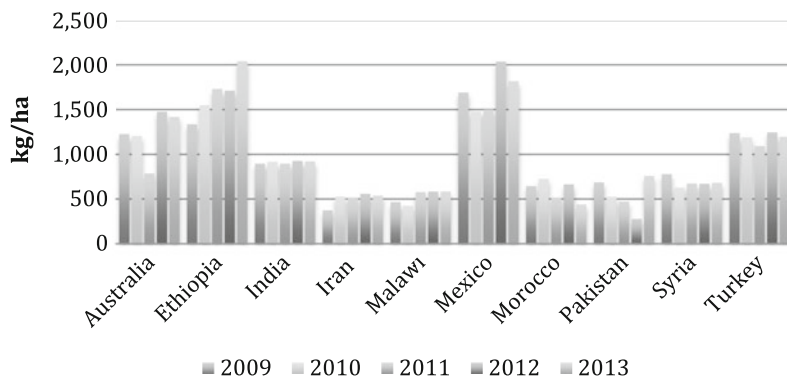


Table 2.2 Area harvested (hectares), mean yields (kg/ha), and total production (tonnes) from chickpea producing countries in important regions from 2009 to 2013

Region	Country	Area (ha)	Productivity (kg/ha)	Production (1000 tonnes)
Africa	Algeria	27,419	886	24,408
	Egypt	2671	2071	5465
	Ethiopia	202,927	1673	333,377
	Malawi	115,545	526	61,075
	Morocco	71,072	597	42,597
	Tunisia	8254	971	8003
West Asia	Iran	549,176	502	275,385
	Iraq	9790	91	894
	Israel	4250	4723	19,820
	Jordan	1153	2033	2349
	Lebanon	2766	920	2592
	Kazakhstan	25,820	527	12,960
	Syria	32,323	799	25,604
	Turkey	437,472	1191	520,935
	Yemen	19,052	2985	56,841
South Asia	India	8,634,000	910	7,858,500
	Bangladesh	7866	849	6680
	Myanmar	326,107	1414	461,708
	Pakistan	1,049,660	543	568,000
	Nepal	9037	881	7992
Asia	China	2980	3438	10,300
	Uzbekistan	2520	1460	3680
Europe	Greece	1880	1631	2960
	Italy	6622	1394	9243
	Portugal	1133	579	653
	Russia	19,920	2850	52,200
	Spain	32,323	799	25,604
North America	Canada	63,800	1947	125,080
	Mexico	92,938	1705	163,674
	USA	64,135	1740	112,364
South America	Argentina	37,800	1054	39,700
	Chile	1875	1033	1947
Australia		509,162	1222	609,402
World (total)		12,531,411	925	11,593,870

Source FAOSTAT (2015)

country in Africa, while Iran and Turkey predominate production in West Asia. Spain is the major producing country in Europe. In North America, Mexico predominates followed by USA

and Canada. Most of this production is devoted to exports; however, the emergence of hummus as a popular value-added product in the USA has created domestic demand that now consumes over

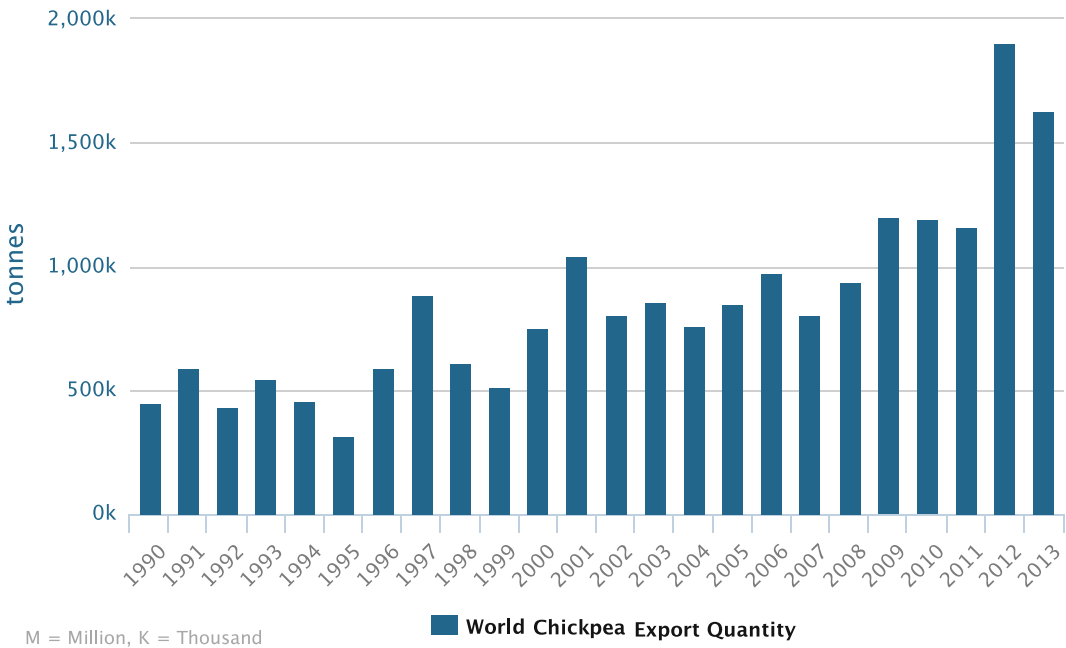


Fig. 2.6 World chickpea export quantity from 1990 to 2013. *Source* FAOSTAT (2015)

65% of production. In South America, Argentina has become a major producer. Australia has become a major producer of chickpea with most of the production being exported to South Asia to meet current demand for the commodity in India and Pakistan (Fig. 2.6).

2.3 Exports and from Which Countries

Considerable quantities of chickpea (estimated at 1.3 million tons) have entered world trade as consuming countries have been unable to meet demand through domestic production. Australia nearly meets half of world export demand and provides an over 570,000 tons to the market annually in the most recent period where data is available (FAOSTAT 2015). Exports had a value of \$280 million (Australian) in 2009 (Pulse Australia 2011) and similar value in the following years up to 2013. India, while being the largest producer and importer of chickpea is also a major exporter ranking second only to Australia. Mexico, with a large production of high

quality and large seeded Kabuli types, is the third most important exporter with the commodity being exported to over 50 countries worldwide with Algeria, Turkey, and Spain their most important customers. Turkey, also a major exporter with over 40,000 tons annually, with most of the tonnage moving to neighboring countries of Iraq, Jordan, and Saudi Arabia (Table 2.3).

Table 2.3 Annual exports from major chickpea exporting countries from 2009 to 2013

Country	Exports (t)
Argentina	47,549
Australia	570,860
Canada	63,968
India	206,607
Mexico	126,710
Russian Federation	99,841
Turkey	43,638
USA	54,886
Ethiopia	56,169

Source FAOSTAT (2015)

2.4 Demand and Consumption

Chickpea is divided into two distinct classifications. The most prominent type is referred to as “Desi” and is characterized by relatively small seeds that range from light tan to black and with many variations including various markings of anthocyanin pigmentation. The relatively small seeds have rather thick seed coats and yellow cotyledons. The seeds are often decorticated (seed coat removed) and cotyledons split to form a product referred to as “dal.” Dal, which can be made from most pulse crops, is used in soup making and is popular in South Asia. The less prominent type referred to as “Kabuli” is characterized by relatively large seeds that can range up to 22 mm in diameter and larger. Seed coats of Kabuli types lack pigment and are light tan and quite thin. This particular type is preferred in most markets outside of South Asia most likely because it is easier to produce and less expensive. Overall, world production of chickpea is predominated by the Desi type that accounts for 80% of production with the remaining 20% devoted to Kabuli types (Table 2.4).

2.5 Uses for Chickpea

Chickpea is a highly nutritious and an inexpensive source of protein that is estimated at 24% and ranges from 15 to 30% (Hulse 1994) depending on variety and environmental conditions (Nleya et al. 2000). Chickpea also has estimated 60–65% carbohydrates, 6% fat and is a good source of minerals and essential B vitamins. There are numerous uses for Desi and Kabuli types. They can be boiled, eaten raw as a fresh vegetable, roasted, dehulled to make dal or

Table 2.4 Major chickpea importing countries (mean imports from 2009 to 2013)

Country	Imports (t)
Algeria	69,950
Bangladesh	155,817
Sri Lanka	20,613
Egypt	20,679
France	6085
Greece	4482
India	309,536
Iran	16,786
Iraq	12,538
Jordan	31,734
Lebanon	12,794
Libya	3231
Pakistan	173,819
Portugal	13,168
Saudi Arabia	36,145
Spain	53,941
Syria	4997
Oman	2967
Turkey	22,451
United Arab Emirates	82,257
USA	21,681

Source FAOSTAT (2015)

processed into flour that can be added to bread. Dal made mostly from Desi types, used in making a soup that is served with rice in most areas of South Asia providing a nutritious combination of a cereal grain and a pulse crop. It is well known that the amino acids of pulses, particularly those containing sulfur amino acids compensate for those that are limiting in the cereals (Table 2.5).

Table 2.5 Top 25 chickpea producing countries in 2013 in terms of tons produced and value (\$)

Country	Production (tons)	Value (\$ Int.)
India	8,832,500	3,432,504,000
Australia	813,300	385,361,000
Pakistan	751,223	241,389,310
Turkey	506,000	189,962,230
Myanmar	490,000	135,081,110
Ethiopia	409,733	117,206,960
Iran	295,000	115,933,810
Mexico	209,941	78,157,930
Canada	169,400	78,612,320
USA	161,434	75,000,000 ^a
Tanzania	110,116	51,984,950
Russian Federation	100,000	29,043,960
Malawi	67,000	28,535,690
Yemen	58,800	28,463,080
Argentina	53,500	24,566,350
Syria	53,022	23,823,550
Algeria	34,980	13,810,400
Spain	26,500	11,375,550
Israel	26,315	12,394,750
Morocco	25,003	10,723,050
Kazakhstan	14,700	1,811,340
Italy	12,077	5,555,630
Nepal	9696	4,112,620
Tunisia	7840	4,987,090
Eritrea	7150	3,185,150

Source FAOSTAT (2015); ^aEstimated value of the USA production

2.6 Conclusion

Remarkable progress has been made in the production of chickpea in the past several decades. Yields have improved considerably which is a likely consequence of sustained research efforts by the international centers, ICARDA and

ICRISAT, and national research and breeding programs. Expansion of production in new regions, particularly Australia and North America, has significantly contributed to overall world production and availability of the commodity in international markets. World trade has increased markedly in the past two decades likely due to demands of an increasing population and improving purchasing power of in developing countries. The outlook for chickpea is excellent considering the excellent nutrient concentrations and food value. Expansion of production to meet expanding demand is expected to continue.

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