

COST OF PRODUCTION IN THE U.S. AND OTHER COUNTRIES

Rafiq M. Chaudhry

International Cotton Advisory Committee

Washington, DC

Abstract

Cost of production and prices are the most critical factors that affect farmers and help them to decide how much area they will plant to cotton. According to survey data collected by the International Cotton Advisory Committee (ICAC), the average cost of producing a kilogram of lint in the world in 2003/04 was US\$1.14. The cost of producing a kilogram of seedcotton was US\$0.33. The highest costs of production are in Europe, followed by Africa and North America. According to data from 30 countries that participated in the ICAC survey in 2004, it is least expensive to produce cotton in India and Argentina.

Introduction

The International Cotton Advisory Committee (ICAC) has undertaken surveys on cost of production for over 25 years including in 1992, 1995, 1998, 2001 and 2004. The ICAC is the only source for international cost of production data. Thirty countries participated in the recent survey and provided data for the year 2003/04. Cotton production conditions vary within countries, and 11 countries provided data for more than one set of production practices, bringing the total number of responses to 51.

Sources of Data

The ICAC is an international intergovernmental organization comprised of cotton producing, consuming and trading countries. The Committee has consultative status with the U.N. and is the recognized international commodity body on cotton. The main functions of the ICAC are

- To provide authentic statistics on world cotton production, consumption, trade and stocks and to identify emerging changes in the structure of the world cotton market.
- To suggest, as and when advisable, to the governments represented any measures the committee considers suitable and practicable for the achievement of ultimate collaboration.
- To serve as a forum for discussion of cotton matters of international significance.

Currently, 41 governments representing 75% of world cotton area in 2004/05 are members of the ICAC. Each member government has designated a 'Coordinating Agency' from within the government, or a public/private cotton organization, to represent the respective government within the ICAC. The sources of data are coordinating agencies in ICAC member countries, or the related government agencies/departments and cooperating researchers/institutions in countries who are not members of the ICAC. For the sake of consistency, the questionnaire designed in 1992 has been used in each year since. The questionnaire accommodates most variations in production practices and different norms of input applications.

Cost of Production in the World

The cost of producing a hectare of cotton ranges from less than \$400 in a number of countries to almost \$4,000 in Israel. However, the data from 30 countries showed that on average \$1,139 are spent to grow, harvest and gin one hectare of cotton. The world average land rent for a hectare of cotton is \$241 thus reducing the ownership cost to a grower to \$898/ha. Additional income from seed sold after ginning reduces the net cost to \$732/ha. Ownership costs for seedcotton/ha (excluding land rent, ginning, economic and fixed costs) comes to \$617/ha.

With a world average yield at 642 kg/ha in 2003/04, the net cost per kilogram of lint (excluding land rent and seed value) in the world was \$1.14/kg. The cost of production increases to \$1.52/kg of lint if the farmer does not own land and has to pay rent for cotton production. The data from 30 countries showed that on the average, a farmer spends \$0.33/kg to produce a kilogram of seedcotton, indicating that ginning, economic and fixed costs are

expensive.

Cost of Production by Region

Cotton production costs per kilogram of lint are the highest in Europe and the lowest in Australia and South America. The European data is from Bulgaria and Spain; Greece did not participate in the survey. However, it is clear that the cost of production in Greece is close to that in Spain. None of the Central Asian countries provided data for the survey. But, the average of eight Asian participating countries that planted 53% of world cotton area in 2003/04 indicates an average net cost of production at \$1.14/kg. Net cost of production in North America, including Mexico and the USA, is 130% of the world average.

Table 1: Cost of Producing a Kg of Lint by Region

Region	Cost/ha (\$)	Cost/kg (\$)	% of World
North America	1,090	1.48	130
South America	995	1.09	95
Africa	513	1.40	123
Asia	700	1.14	100
Europe	3,362	3.72	326
Australia	1,937	1.08	95
World	732	1.14	

Ten countries from Africa, including Benin, Cameroon, Côte d'Ivoire and Togo from West Africa, participated in the survey. The average cost of producing a hectare of cotton in Africa is less than 50% of the cost in North America, but due to lower yields, the cost per kilogram of lint is more than all other regions except Europe. Argentina, Brazil, Bolivia, Colombia, Paraguay and Peru participated in the survey from South America where production costs are almost equal to Australia.

Table 2: Cost of Producing a Kg of Seedcotton by Region

Region	Cost/ha (\$)	Cost/kg (\$)	% of World
North America	682	0.34	103
South America	884	0.32	97
Africa	395	0.36	109
Asia	626	0.34	103
Europe	1,890	0.70	212
Australia	887	0.21	64
World	617	0.33	

The cost of producing a kilogram of seedcotton is also the highest in Europe and lowest in Australia. Farm gate production costs in Asia, Africa and South America are more than 150% of costs in Australia. In the USA, farmers can produce seedcotton at comparatively lower cost but costs of ginning, plus economic and fixed costs make it more expensive to produce cotton in the USA. The cost of producing a kilogram of seedcotton is close to each other in Asia, Africa and South America.

Cost of Production by Country

Thirty countries participated in the ICAC survey; Argentina, Australia, Bangladesh, Benin, Bolivia, Brazil, Bulgaria, Cameroon, China (Mainland), Colombia, Côte d'Ivoire, Ethiopia, India, Iran, Israel, Mali, Mexico, Nigeria, Pakistan, Paraguay, Peru, Philippines, South Africa, Spain, Sudan, Tanzania, Togo, Turkey, USA and Vietnam. In this paper, nine countries are discussed in detail. The data from the USA are presented based on production practices. The U.S. cotton area is divided into five sets of production practices, and accordingly the cost of production varies among regions. The U.S. data for 2003/04 by region is as follows. However, for comparison with

other countries, the national average data have been used. In the USA, yields are the highest in the Fruitful Rim, almost double that of the national average, and that is why cost/kg is the lowest in this region. Average yields in the Prairie Gateway region are only one fourth of the Fruitful Rim and almost 50% of the national average which makes it expensive to produce a kilogram of lint.

Table 3: Cost of Producing in the USA

Region	Cost/kg (\$)	% of US Average
Heartland	1.08	73
Mississippi Portal	1.27	86
Fruitful Rim	1.02	69
Prairie Gateway	2.15	145
Southern Seaboard	1.44	97
National Average	1.48	

Eight additional countries included in the comparison are Argentina (Santiago del Estero-irrigated), Australia (Irrigated Upland), Brazil (Cerrado), China (Mainland), India (national average) Mali, Pakistan (Punjab) and Turkey (national average). The cost of producing a kilogram of seedcotton is \$0.21 in Argentina and Australia and US\$0.37 in Pakistan. The cost is high in Pakistan due to high opportunity costs for irrigation water and comparatively high costs for fertilizers. The average cost of producing a kilogram of seedcotton in India is \$0.27. In all other countries the cost of producing a kilogram of seedcotton is either equal to the world average of \$0.33/kg or within a margin of three to four cents.

The data from the nine countries discussed here shows that there is substantial variation in the net costs of producing a kilogram of lint. The cost of production is the lowest in India and highest in the USA. In India, the average of four regions showed that net cost per kilogram of lint, excluding land rent and seed value, was only \$70/kg. The net cost is low in India due to the high value of seed that finds many uses in the country. Within India, the cost of production ranged from \$0.50 to \$0.86/kg. Production costs are the lowest in the North where cotton is grown under irrigated conditions and yields are higher compared to the Central and South regions of India. The net cost of producing a kilogram of cotton is comparable among Brazil (Cerrado), China (Mainland) and Pakistan (Punjab). Net costs of production are close to each other in Australia and Turkey i.e. \$1.37 and \$1.34/kg respectively. In the USA, on average \$1.48 are spent to produce a kilogram of lint. The cost of production of seedcotton and lint shows that the cost of ginning, economic costs and fixed costs are more expensive in some countries than in others.

Figure 1: Cost of Production of Seedcotton

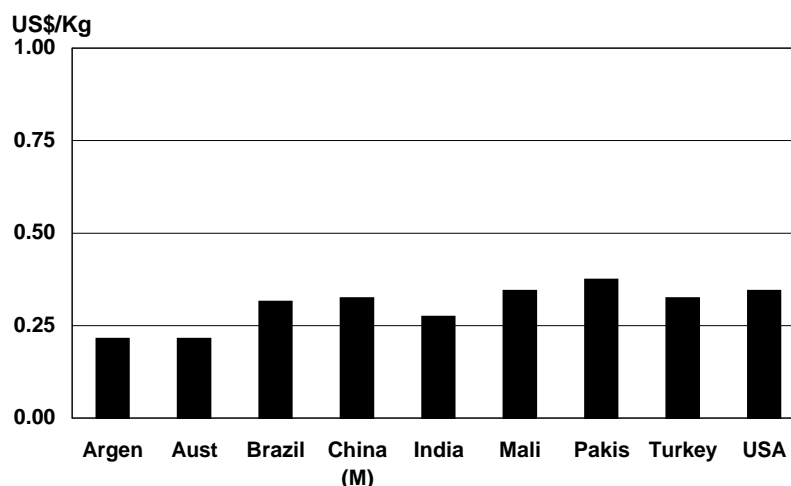
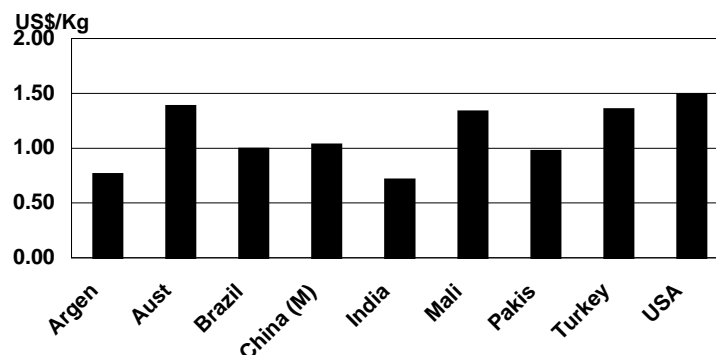


Figure 2: Net Cost of Production of Lint

Some Caveats

The ICAC Secretariat is aware that cost of production data come from actual surveys of farming practices in some instances such as the USA and Australia. While some countries undertake sample surveys, cotton researchers complete survey forms in others. The source of data for individual input costs or operations can vary greatly from country to country. When and how the opportunity costs of inputs and operations are calculated is also a source of variation among countries. Therefore, it is quite possible that the ICAC cost of production data represent potential costs rather than the actual costs.

Ideally, one could measure the cost of producing cotton using a uniform method of collecting data and measuring the cost of all inputs and operations through to the production of seedcotton and lint. At the same time, in order to calculate the net cost of lint or ownership cost of seedcotton production, one must have complete data on land rent, as well as the value of seed after ginning. However, no uniform standard data are available other than for a very small number of countries.

No opportunity costs are available for some inputs/operations. Land is a basic requirement to grow cotton but in some countries there is no land rent system. Cotton companies in West African countries provide planting seed free to cotton growers. Production technology is free in most countries but not in a country like Australia where cotton consultants are hired by cotton growers. Family labor employed in field operations and government subsidies on inputs are other critical factors making comparisons difficult and sometimes invalid among countries.

Cotton is produced in many parts of the world under a variety of production conditions, different climates and different systems of economic organization. Cotton produced in two countries at a same cost may not fetch the same price. Cotton produced in Egypt is not the same quality as in other countries and will be sold at a higher price.