



Trade Analysis of Potato- India and Worldwide

Yogesh Gautam

ICAR-Central Potato Research Institute, Shimla HP

Yogesh.Gautam@icar.gov.in

Abstract

India is the second largest potato producer country in the world. The top potato growing states in India are Uttar Pradesh, West Bengal, Bihar and Gujarat. The diverse climate of India ensures availability of all varieties of vegetables. Regarding exports, India exported potato to the world worth USD 48 million in 2017 which accounted for 1.2% of the global exports for this product. Nepal is the largest export destination for Indian potato and covered approximately 45% of India's exports of potato in the said year. India mainly exports potatoes on two varieties such as fresh or chilled potatoes and seed potatoes. Fresh potatoes accounted for more than 90% of the total exports. Also, the demand of India seed potatoes in the global market have been raised by 25% of value in last five years. This paper presents figures of potato production in India and the world, and also regarding exports of potato.

Introduction

India is the second largest potato producer country in the world. The top potato growing states in India are Uttar Pradesh, West Bengal, Bihar and Gujarat. The diverse climate of India ensures availability of all varieties of vegetables. As per the media reports of Export Genius, the neighbouring country such as Pakistan has restricted import of perishables from India since November last year. As a result, it has hit export of vegetables to Pakistan and Afghanistan as well. The prices are higher in these countries and currency valuations make neighbouring destination ideal for export of potato.

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Potato is major food crop in India and it is grown in various states of the country. It is most popular vegetable used in India and most common vegetable cooked with other vegetables. However, the potato is not only used as a home cooking vegetable and it is used for a variety of purposes. India is a major potato producer country, it consumes as the needs and exports the rest quantity. Production wise Uttar Pradesh, with a total annual production of 15,325,55 tonnes potatoes, tops the states in terms of potato production. West Bengal is second with a production of 13,783,00 tonnes, followed by Bihar and Gujarat. Fig. 1 shows India’s top 10 producing states.

Indian Potato Exports to the Global Countries (Fig. 1)



India is exporting potato to more than 30 countries around the world. Nepal is the biggest potato export partner of India and recorded USD 21.89 million in 2017 which accounted for 44.8% of the total’s value. It has seen a decline in potato exports to Nepal by 43% of value during 2016-17. Potato export data showed a rise of 11% value between 2013 and 2017. Refer the below table to check potato export statistics of top five countries and their value recorded in 2017. Table 1. shows a comprehensive look at the detailed analysis on a report of potato export from India in 2017.

Export data of potato from India (Table 1.)

Country	2019-20		2020-21		2021-22	
	Qty	Rs. Lacs	Qty	Rs. Lacs	Qty	Rs. Lacs
Nepal	302,669.91	29,756.48	218,675.76	30,620.87	257,904.36	29,197.30
Indonesia	19,087.00	4,522.21	11,789.00	2,844.29	30,896.00	6,399.27
Oman	21,946.89	4,630.64	22,070.40	4,559.68	30,733.93	5,781.84
Malaysia	11,310.16	2,576.10	13,898.50	3,188.40	18,193.34	3,759.14
Mauritius	8,120.00	2,062.57	3,892.00	1,230.50	9,772.00	3,222.09
Sri Lanka Dsr	15,819.11	4,109.82	8,459.03	1,975.37	11,822.40	3,024.82
Saudi Arab	14,269.13	2,950.95	15,710.00	3,306.31	13,340.00	2,607.08
U Arab Emts	4,395.53	925.73	6,600.58	1,492.00	9,819.22	1,899.73
Kuwait	7,890.66	1,617.30	7,850.00	1,746.97	8,496.45	1,767.83
Maldives	5,338.57	1,442.08	4,435.00	1,623.08	5,078.91	1,438.91
Vietnam Soc Rep	367.10	84.07	2,837.00	626.08	3,434.00	760.68
Bhutan	14.85	6.42	2,631.47	521.66	2,791.90	483.92
Qatar	1,357.27	277.65	998.10	227.36	1,693.66	348.10
Hong Kong	1,404.00	367.14	1,053.00	268.80	1,269.00	293.97
Seychelles	1,139.70	240.29	1,242.50	376.78	1,096.00	238.05
Baharain Is	1,101.07	211.09	1,289.87	257.69	1,002.13	185.43
Singapore	73.65	15.40	11.21	6.51	42.85	41.23
Jordan	0.00	0.00	0.00	0.00	110.00	17.60
Angola	0.00	0.00	0.00	0.00	54.00	10.65
Australia	1.94	1.86	2.82	3.80	1.85	3.64
Ireland	0.24	0.37	1.59	2.66	1.17	2.43
U S A	0.00	0.00	2.74	4.13	0.83	1.83
U K	0.43	0.64	2.00	3.46	0.86	1.80
Canada	0.82	0.52	0.32	0.60	0.80	1.45
New Zealand	0.32	0.57	0.56	1.01	0.56	1.24
Germany	0.08	0.06	1.00	1.15	0.25	0.48
Afghanistan Tis	20.00	2.00	0.00	0.00	0.00	0.00
Belgium	0.00	0.00	0.40	0.72	0.00	0.00
Benin	0.00	0.00	0.01	0.01	0.00	0.00
Botswana	0.14	0.09	0.00	0.00	0.00	0.00
Brunei	54.00	11.89	29.00	8.43	0.00	0.00
Comoros	172.50	34.13	0.00	0.00	0.00	0.00
Czech Republic	0.00	0.00	0.00	0.00	0.00	0.00
Japan	7.00	4.88	0.00	0.00	0.00	0.00
Liberia	0.00	0.00	0.33	0.21	0.00	0.00
Malta	0.00	0.00	0.65	0.23	0.00	0.00
Mongolia	12.80	1.66	0.00	0.00	0.00	0.00
Namibia	17.50	2.10	0.00	0.00	0.00	0.00
Niger	6.50	0.78	0.00	0.00	0.00	0.00
Norway	0.00	0.00	0.00	0.00	0.00	0.00
Senegal	0.00	0.00	28.00	5.89	0.00	0.00
Somalia	56.00	8.84	0.00	0.00	0.00	0.00
South Africa	0.40	1.26	0.00	0.00	0.00	0.00
Switzerland	0.00	0.00	0.14	0.33	0.00	0.00
Turkey	10,420.00	2,141.91	175.00	40.86	0.00	0.00
Total	427,075.27	58,009.50	323,687.98	54,945.84	407,556.47	61,490.51

List of Fresh Potato Exporters in India

To boost the potato export from India, the government has taken a right step as potatoes is permitted for export without any minimum export price. There are hundreds of Indian exporters supplying potatoes to the foreign countries. Some of them are given below.

S.K. International

S K Cold Storage

Jyoti Exports

M S International

Advait Agrotech Private Limited

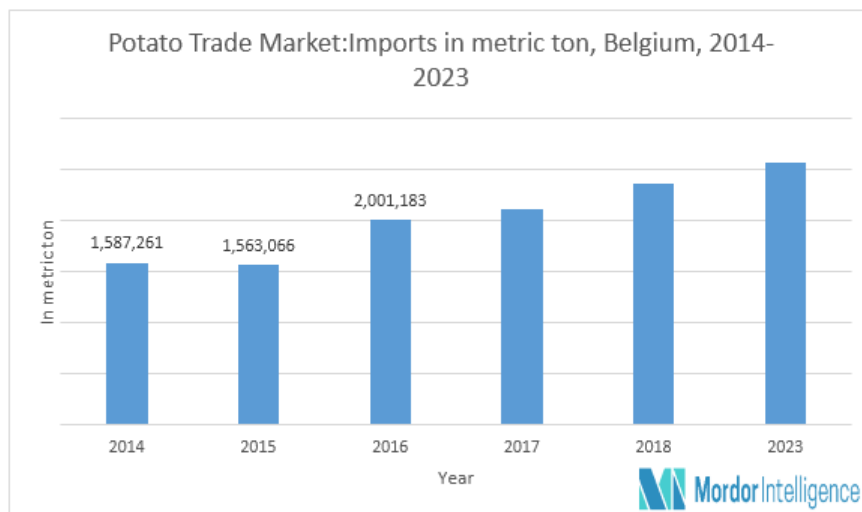
N S Trading Company

Sutharshan Exports

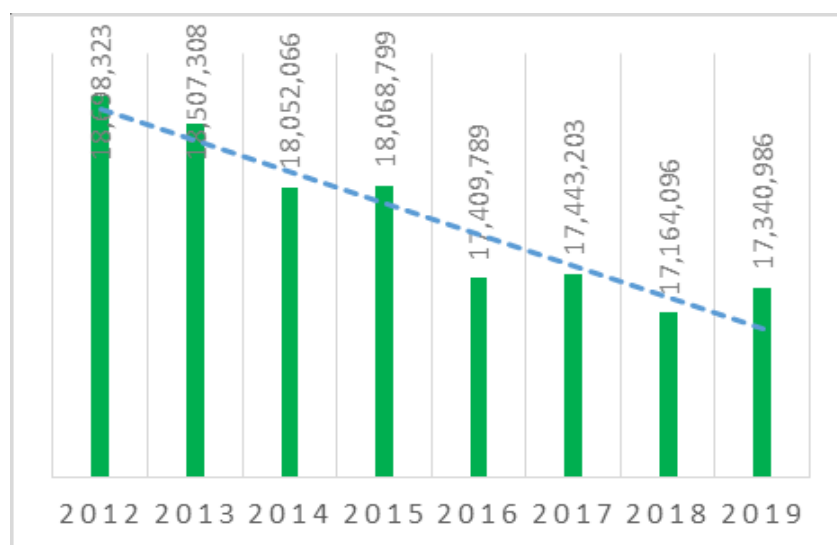
The largest exporter of potato is the Netherlands, exporting 1,993,388 metric tons in 2016. In 2017, the total potato production for consumption in the Netherlands exceeded 4 million metric tons, an increase of 27% compared to 2016, making it the largest supplier and exporter of potato in the world.



The largest importer of potato is Belgium, importing 2,001,183 metric tons in 2016. The major countries exporting to Belgium are France, the Netherlands, Germany, Spain, and the United Kingdom. France was the largest exporter of potato to Belgium in the year 2016 and as per our analysis, exported 1,126,247 metric tons of potato in 2016.

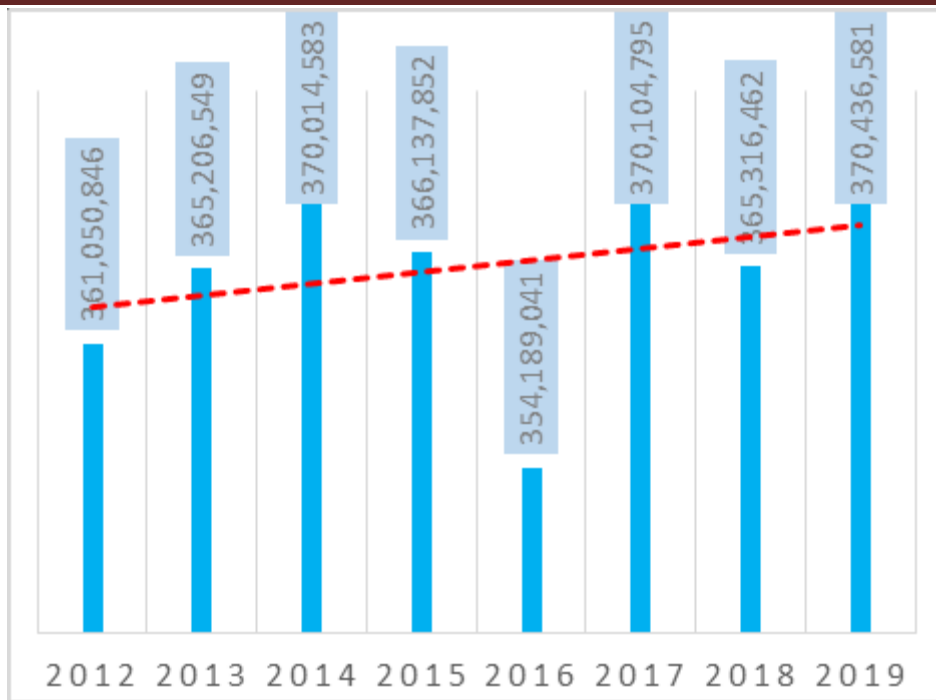


In this paper, a series of aspects are presented regarding the evolution of potato production and trade worldwide, for the period 2012-2019. In the present study a series of benchmarks were analysed for the world sector of potatoes production and trading. The main indicators that have been presented and analysed are: areas cultivated with potatoes worldwide; total potato production; average production per hectare of potatoes; consumption of potatoes; potatoes world trade. The world potato production sector has undergone substantial changes, but it remains one of the important sectors of activity, as the potato occupies a key place on the scale of important foods for the world's population food. According to statistics, China is the leader in the ranking of potato production. Data taken from the FAO website were used in the paper.



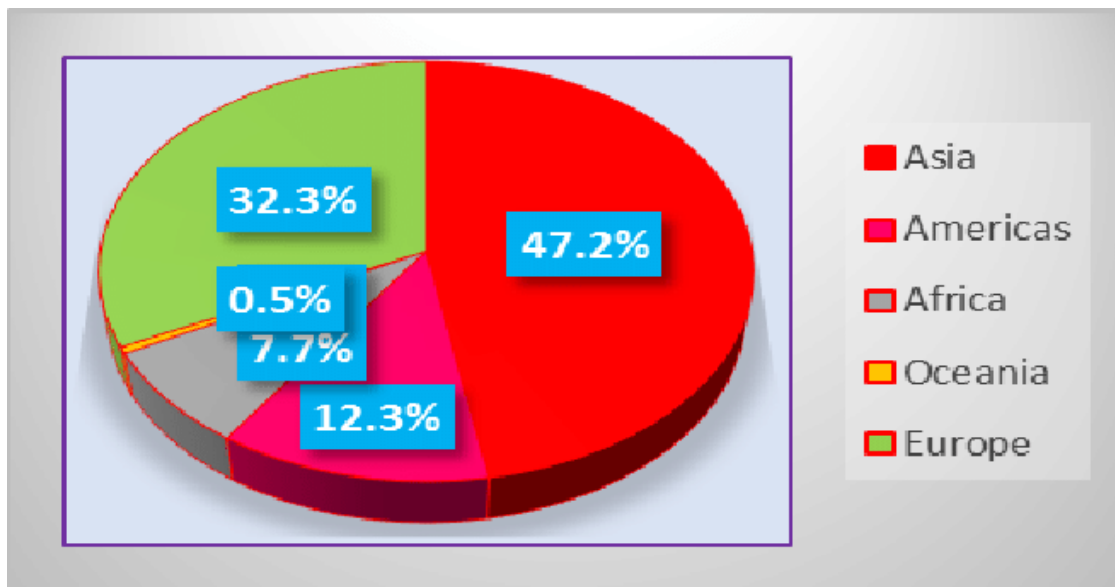
Area cultivated with potatoes worldwide, for the period 2012-2019 (hectares)

Source: Own design based on FAOSTAT database 2021



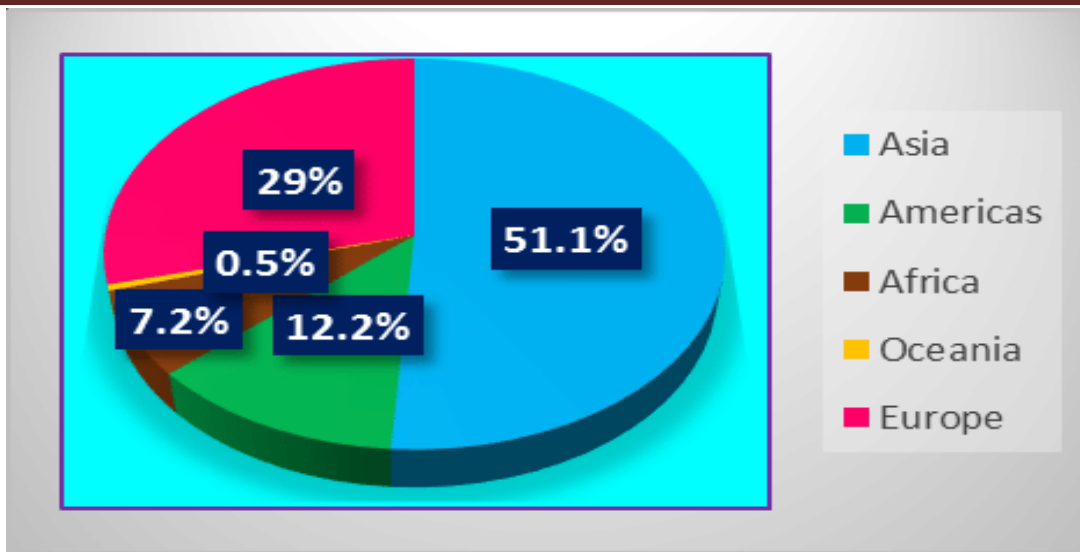
Worldwide potato production, for the period 2012-2019 (tons)

Source: Own design based on FAOSTAT database 2021

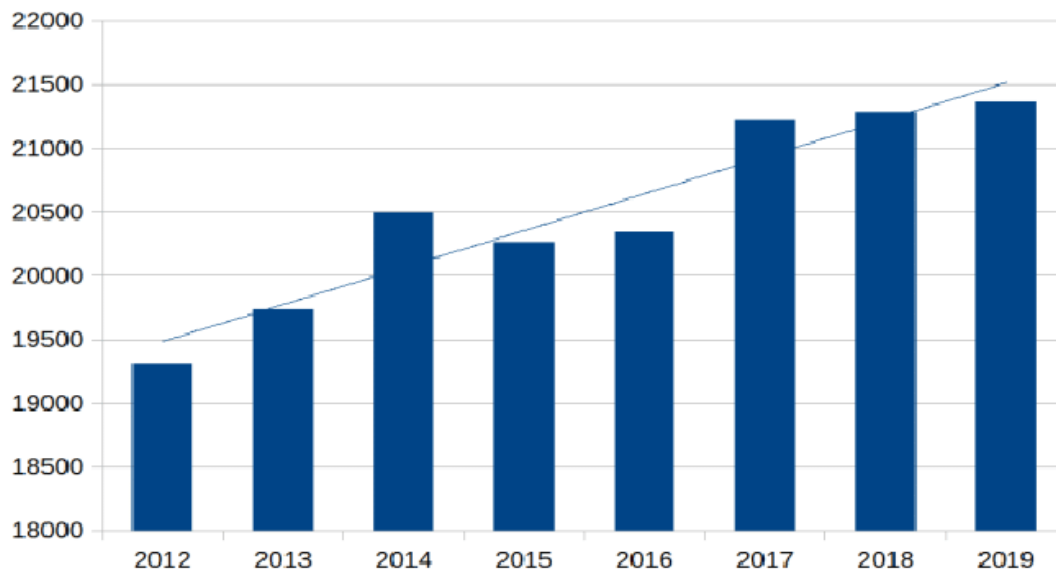


The share of potato production by regions in 2012 (%)

Source: Own design based on FAOSTAT database 2021



The share of potato production by regions in 2019 (%)
Source: Own design based on FAOSTAT database 2021



Average production per hectare of potatoes worldwide, for the period 2012-2019 (kg/ha)

Source: Own design based on FAOSTAT database 2021

There are over 4,000 edible varieties of potato, mostly found in the Andes of South America. Potato is the third most important food crop in the world after rice and wheat in terms of human consumption. More than a billion people worldwide eat potato, and global total crop production exceeds 300 million metric tons. Potato is a critical crop in terms of food security in the face of population growth and increased hunger rates. For example, China, the world's biggest consumer of potatoes, expects that fully 50% of the increased food production it will need to meet demand in the next 20 years will come from potatoes.



Potato: Areas of Cultivation and Average Yields

In 1999, CIP published A Global Geo-Referenced Database of Potato Distribution for 1995-1997, by Luisa Huaccho and Robert J. Hijmans, based on data from the United Nations Food and Agriculture Organization (FAO) and other sources. This map is one of several which updates that effort, with more specific reference to relative productivity expressed as tons per hectare. From 1999 to 2006, total worldwide potato production has remained fairly constant, but with a significant shift of distribution. Even though potato remains an essential crop to Eastern and Central Europe (as obvious from a glance at the map), area under cultivation has been declining over the past decade, for example in the Balkan countries, Poland, and Bulgaria. (However, in some cases production has been roughly maintained via increasing yields.) Meanwhile, the potato crops of Southern and Eastern Asia have generally been expanding very rapidly, both in terms of area cultivated and average yields. Since the dissolution of the Soviet Union, China is now by far the world's primary potato-producing nation. This map portrays potato production by area and estimated yields by nation, and sub-nationally as appropriate and where data are available. As with most other crops, typical yields of potato per unit of land vary widely, from areas characterized by high-input agricultural systems to others where potato is grown as a subsistence crop with minimal use of fertilizers or other inputs. The highest production per land area, in tons per hectare, is reported by Washington State in the USA at around 60, and the lowest is from several countries of Africa, where yields can average less than five tons per hectare. The primary source of potato cropping data at the national level is FAO, with a few exceptions and revisions noted below. Subnational distributional data are reported by some countries, including China and India, but in most cases, estimates are based on the 1999 work published by CIP, noted above, and updated in 2002 by Reinhard Simon and Henry Juarez, also of CIP. In some cases, national data are averaged over several years if 2002 data significantly diverge from a trend. FAO data are frequently collected and reported by the governments of each respective country, hence are of widely varied quality in terms of accuracy and completeness. The countries of greatest interest to CIP are those suffering the most severe poverty, where the data are of greatest importance but ironically often the least reliability. National borders are not included in this map, primarily to allow for a less cluttered view of production patterns. For that, please refer to the relevant regional maps (currently provided for Africa, the Northern Andes, and Eastern Asia).



Notes on particular countries are as follows.

Afghanistan: No data for Afghanistan were reported via FAOSTAT, as of 2005. More recent reports estimate 14,000 hectares at an average of 16.7 tons per hectare, but this should be considered tentative. Angola: FAO reported 11,000 hectares in 2001, 42,000 hectares in 2002, 74,000 hectares in 2003, and 103,000 hectares for 2004. However, production is reported as relatively constant through these years, as average yields are reported to have declined from nearly 14 tons per hectare to below 4 tons per hectare. The 2003 estimate of 74,000 hectares and an average yield of 4.1 tons per hectare is used here, distributed sub-nationally according to a July 2003 production report issued by the FAO and the World Food Programme (no longer available online, as of December 2019). Since root and tuber crop cultivation has generally been underestimated in this region of Africa, the higher estimates are probably more accurate, but still very tentative.

Burundi: Potato area has been reported by FAO at a consistent 10,000 hectares over the past several years, very likely well below potential and actual production, especially considering production under similar physical conditions in adjacent Rwanda.

Cameroon: Potato data are based on a survey undertaken in 2001, which estimated total cultivation nearly three times the area reported by FAO. (Please see the Cameroon chapter of the atlas.) Since the survey was limited to areas of relatively high production, total production data have been slightly redistributed to “smooth” the surface of Cameroon where potato production is most feasible, at higher altitudes. Actual potato cultivation could be higher in some areas than indicated here

China: Chongqing has been an independent province since 1997, formerly part of Sichuan, but not yet listed as a separate province by ESRI. The map displays data of the more generalized amalgamation of the now two separate provinces.

Colombia: Potato cultivation data reported by FAO are roughly consistent with other literature, all of which is however tentative. The higher altitude areas to the south and west of Colombia where most potatoes are grown have been under tentative government control, hence limited data availability. Estimates from this region displayed by the map are probably conservative.

Democratic Republic of Congo: Most potato cultivation of the Kivu District in the eastern region of the country occurs at higher altitudes, adjacent to Rwanda and Burundi, and could be much higher than generally reported.



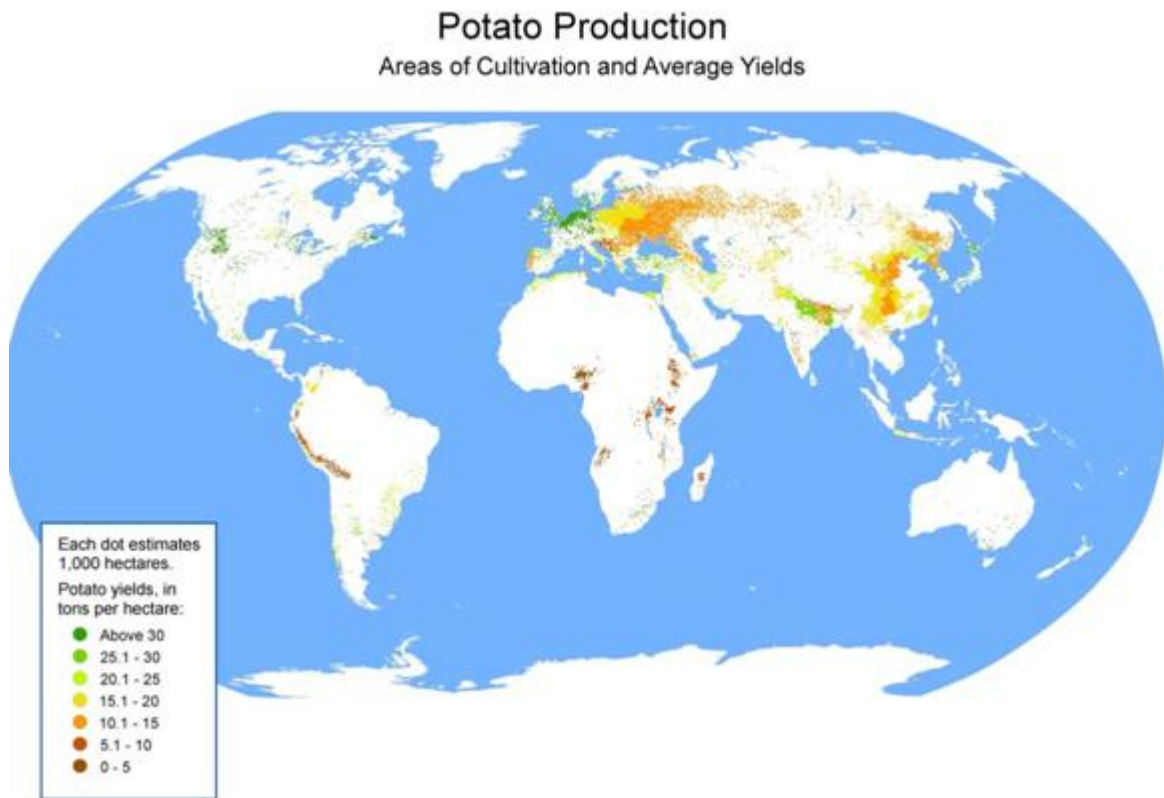
Dominican Republic: All cultivation reported by FAO (over 4,000 hectares) is attributed to the Bonao Region in previous CIP maps, an area not found in ESRI data, but estimated here by reference to other maps and consistent with higher altitude.

Ethiopia: As with Cameroon, potato data are based on a survey of high-production areas, with estimates much higher than those reported by FAO. (Please see the Ethiopia chapter of the atlas.) This estimate could likewise be quite conservative.

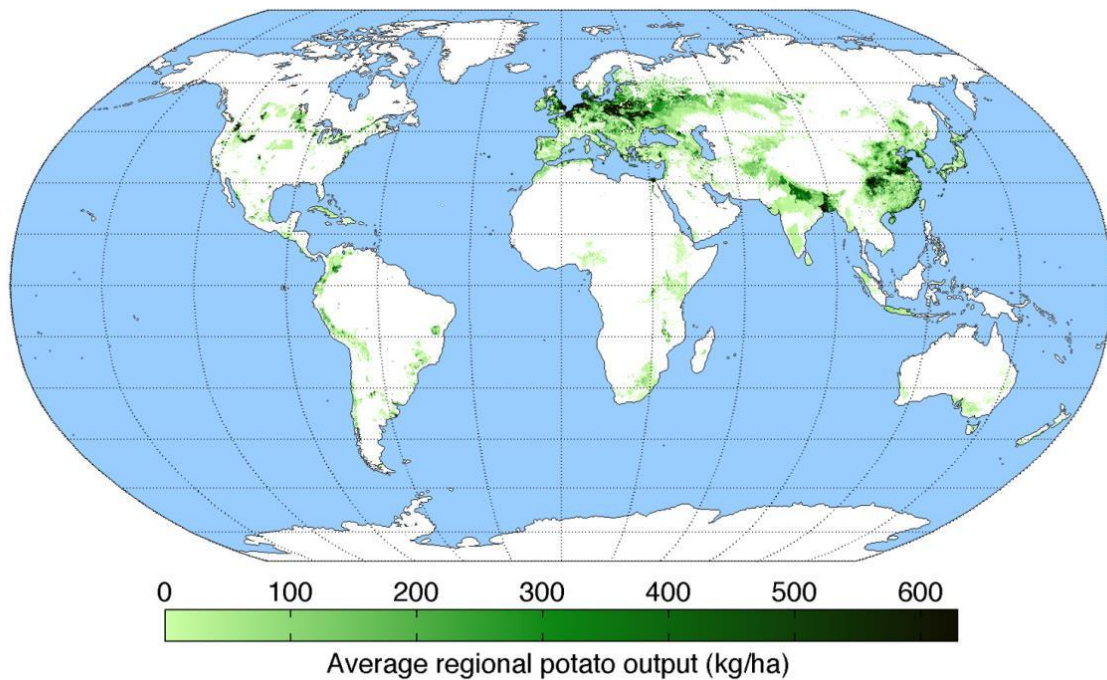
India: Data provided by the Government of India (area of cultivation and yields) for 2000-2001 have been extrapolated to 2003 to reflect increasing area of cultivation. The data also indicate slight declines in average yields since 200-2001. ESRI data used for this map did not indicate Uttranchal as a separate state, partitioned from Uttar Pradesh several years ago. Data reported by the Government of India for Uttranchal are therefore included as part of Uttar Pradesh. Iraq: As with Afghanistan, no data are reported by FAOSTAT as of 2005. Older “gray literature” has described the most intensive potato production taking place in the higher altitude regions of the north.

Malawi: Data are displayed as reported via the Famine Early Warning System (FEWS) for 2004, (approximately 27,000 hectares), not as reported via FAO. FAO reports much higher production of potato and nothing of sweetpotato (grown much more extensively than potato), apparently reflecting a confusion of the two crops. Nigeria: Data reported by FAO indicate a gradual but consistent national upward trend over the past five years, known from other sources to be concentrated in areas of higher altitude, centered on the Plateau and Kano States. The map displays estimated areas of production with some “smoothing” across adjacent areas of relatively high altitude. Peru: Sub-national distribution is based on data provided by B.R. Egusquiza (November 2000): La Papa: Producción, Transformación, y Comercialización (RedePapa) with a slight upward extrapolation of area under cultivation to be consistent with national data reported via FAO for 2003.

Russian Federation. The map displays a national average yield of 11.6 tons per hectare, which almost certainly varies subnationally. The map can hopefully be improved over time in this respect, pending the availability of more data. Serbia and Montenegro: Production data are reported by FAO jointly for both territories. Serbia and Montenegro: Production data are reported by FAO jointly for both territories. Sudan: No reliable data are currently available. Potato production has been reported as minor, but with some concentration around the capital city of Khartoum and the Marra Plateau area to the west. (The WPA was released prior to the secession of South Sudan from Sudan in 2011.)



Map design and production by Kelly Theisen, using ESRI ArcGIS 9/ ArcMAP at CIP Research Informatics Unit. Lima, Peru. August 2006. Revised February, 2009.



Potato production of top 25 countries from 2016-2020 (Table 2.)

S.No.	Country	2020	2019	2018	2017	2016
1	China	78,183,874	75,595,403	90,259,155	88,481,500	84,928,500
2	<u>India</u>	51,300,000	50,190,000	51,310,000	48,605,000	43,417,000
3	<u>Ukraine</u>	20,837,990	20,269,190	22,503,970	22,208,220	21,750,290
4	<u>Russia</u>	19,607,361	22,074,874	22,394,960	21,707,645	22,463,487
5	<u>United States</u>	18,789,970	19,251,320	20,421,560	20,453,430	20,426,359
6	<u>Germany</u>	11,715,100	10,602,200	8,920,800	11,720,000	10,772,100
7	<u>Bangladesh</u>	9,606,000	9,655,082	9,744,412	10,215,957	9,474,099
8	<u>France</u>	8,691,900	8,560,410	7,860,380	8,547,354	6,954,983
9	<u>Poland</u>	7,848,600	6,481,620	7,311,960	9,171,733	8,872,445
10	<u>Netherlands</u>	7,020,060	6,961,230	6,025,370	7,391,881	6,534,338
11	<u>United Kingdom</u>	5,520,000	5,307,000	5,060,000	6,218,000	5,395,000
12	<u>Peru</u>	5,467,041	5,389,231	5,133,927	4,776,294	4,514,239
13	<u>Canada</u>	5,295,484	5,364,169	5,204,548	5,419,238	5,345,626
14	<u>Belarus</u>	5,231,168	6,105,294	5,864,325	6,414,755	5,984,069
15	<u>Egypt</u>	5,215,905	5,200,563	4,960,062	4,841,040	4,113,441
16	<u>Turkey</u>	5,200,000	4,979,824	4,550,000	4,800,000	4,750,000
17	<u>Algeria</u>	4,659,482	5,020,249	4,653,322	4,606,402	4,759,677
18	<u>Pakistan</u>	4,552,656	4,869,312	4,591,776	3,852,897	3,977,595
19	<u>Iran</u>	4,474,886	3,673,984	3,574,934	4,117,462	4,995,327
20	<u>Kazakhstan</u>	4,006,780	3,912,103	3,806,992	3,551,114	3,545,695
21	<u>Belgium</u>	3,928,910	4,027,620	3,045,440	4,416,665	3,402,787
22	<u>Brazil</u>	3,767,769	3,711,744	3,728,953	3,655,069	3,851,396
23	<u>Uzbekistan</u>	3,143,818	3,089,658	2,911,933	2,793,689	2,789,476
24	<u>Nepal</u>	3,131,830	3,112,947	3,088,000	2,691,037	2,805,582
25	<u>Denmark</u>	2,762,900	2,408,700	1,806,800	2,171,000	1,954,016

Table 2 shows the potato production of top 25 countries of the world from the year 2016 to 2020. Figures show that China leads the show and India is at the second spot. It is followed by Ukraine, Russia and the United States.



Potato trade from China – an example

Relevant data (<https://www.potatopro.com/news/2022/potato-export-china-hits-another-record-august>) shows that from January to August 2022, China exported about 220,300 tons of fresh or refrigerated potatoes (except for seeds), an increase of about 2.57% compared with the same period last year; the total export value was about USD 119.65 million, an increase of about 6.43% compared with the same period last year. Among them, in August, China exported fresh or refrigerated totaled about 45.39 thousand tons, a decrease of about 16.43% compared with the export volume of 54.31 thousand tons in July. Compared with the export volume of 38.35 thousand tons in the same period last year, it is an increase of about 18.35%. The export value for this month totaled about USD 25.31 million, an increase of about 15.79% over the same period last year. From the perspective of exporting countries/regions, the top ten countries or regions importing fresh or refrigerated potatoes from China in August 2022 are Vietnam, Malaysia, Myanmar, Thailand, Singapore, Hong Kong, Macao, the Russian Federation, Brunei, and Timor-Leste. Among them, the country with the largest import of fresh or refrigerated potatoes from China in August was Vietnam, with a volume of about 16.87 thousand tons, a decrease of about 19.20% over the same period last year; the amount was about USD 14.58 million, a decrease of about 11.22% over the same period last year.

Followed by Malaysia, the import volume was about 10.49 thousand tons, a decrease of about 3.34% over the same period last year; the amount was about USD 3.66 million, an increase of about 35.86% over the same period last year. The amount imported by Myanmar was about 9.92 thousand tons, with an amount of about USD 2.89 million. Overall, a total of 13 countries imported fresh or chilled potatoes from China in August. In terms of export unit price, the export unit price of fresh or refrigerated potatoes in China in August 2022 was USD 558/ton, compared with the export unit price of USD 490/ton in July, an increase of about 13.88% month-on-month. Compared with the export unit price of USD 570/ton in August 2021, it is down about 2.11% year-on-year.



Conclusion

Definitely, India is growing a huge amount of potatoes and at second position in the world, after China, as far as the potato production is concerned. Regarding exports, India exports potatoes to a number of countries with major exports to Nepal. It is a major crop in India as well as the world. Still there is a gap of around 27,000,000 tonnes of potato production when compared to China. This gap can be narrowed down using new varieties, new technologies to grow potatoes. Research will definitely play a very important role if India aspires to become the top potato producing country of the world.