

CHANGING GLOBAL SCENERIO IN MUSHROOM INDUSTRY

BEHARI LAL DHAR

C 106, Kendriya Vihar, Sector 56, Gurgaon, Haryana, India

www.nnmushroomconsultingindia.com

beharilaldhar@gmail.com,

ABSTRACT

Mushroom industry globally has expanded both horizontally and vertically, meaning that the expansion has been in production and addition of newer types of mushrooms for commercial cultivation, both edible and non edible mushrooms. Today China is leading in global mushroom production both in cultivation of edible and non edible types. China produces approximately 70 percent of world mushroom production and mushroom is their sixth economically important crop as far as country's revenue generation is concerned. The second highest mushroom producing country is USA, followed by some European countries. European production is confined to France, Germany, Holland, Italy and other countries in western-Europe. There is a matching contribution in mushroom production in Eastern European countries like Hungary and Poland where mushroom production has received a boost as can be seen from the production figures available and mushroom activity in these countries.

Keywords: global mushroom production, mushroom consumption

WORLD SCENARIO AT A GLANCE

Mushroom farming has become popular all over the world with advancement and dissemination of information on its cultivation technology. Mushroom is an indoor crop and the production can be controlled suiting a particular market condition. Global mushroom industry has expanded horizontally and vertically, meaning that the expansion has been in production and addition of newer types of edible mushroom varieties for commercial cultivation. Today China is leading in global mushroom production. China produces approximately 70 per cent of world mushroom production (2008), and mushroom is their sixth economically important crop in terms of country's revenue generation. The second highest mushroom producing country is USA, followed by European Union Countries. European Union production is confined to France, Germany, The Netherlands, Italy, Poland, Spain, Hungary and others. Lately there is increased contribution in mushroom production from Eastern European countries like Poland and Hungary where mushroom production has received a boost as evident from the production figures of these countries. I will discuss the production, consumption and trade volume of different mushroom importing and exporting countries in this presentation.

United States: United States of America is the largest consumer of mushrooms in the world today. US trade flows for canned mushrooms dominated by imports, especially those from China, India, and Indonesia. The trade deficit trended irregularly downward for China, India, and Indonesia from 2003-06 following the continuation of high antidumping duties on imports of canned mushrooms from these countries. By 2007-08, however, imports from China, India, and Indonesia had risen to a five-year high, in spite of the antidumping duties on US imports. China, India, and Indonesia have principle suppliers of canned mushrooms to the US market since 2003-04, are global exporters of canned mushrooms and have been very successful in selling lower priced products into the US market. Imports of canned mushrooms into US amounted in 64867 tons in 2007-08, down by 2 per cent from 66212 tons in 2003-04. Imports were down by 23 per cent in volume from 2007-08 to 2008-09. Imports from China were down in 2005-06, not only for antidumping duties already mentioned, but also because of a drop in Chinese production. U.S. exports of fresh and canned mushrooms are small relative to imports, amounting to 7212 tons and 709 tons in 2007-08, and 8119 tons and 1281 tons 2008-09, respectively. Canada is the principal market for US exports of fresh mushrooms, accounted for nearly 90 per cent of export volume annually since 2003-04. US mushroom exports to Japan and France, by comparison, are principally specialty mushrooms. There are no US non tariff measures applicable to imports of canned or fresh mushrooms, nor are mushrooms subjected to any domestic content laws, guaranteed minimum prices, or requirements that import be entered through certain ports. US imports of fresh and canned mushrooms must be packaged and labelled correctly and should have all the necessary

customs entry paperwork, according to existing regulations of US. There are no sanitary / phytosanitary measures affecting the entry of any mushrooms in the US market .

Global Market: Fresh and processed button mushrooms and fresh specialty mushrooms are produced and consumed in many countries. Fresh mushrooms are perishable, so their global movement often has been restricted to transactions mainly between neighbouring countries. The movement of fresh mushrooms on a global scale increased lately but canned mushrooms are shelf stable, with a shelf life of two to three years and thus, are the major mushroom product traded globally. Global mushroom production amounted to 3.4 million tons in 2007, trending steadily upward from 2003. China remained the leading global producer of mushrooms for all uses and has been for the past five years. Since 2005-06, the Chinese national government increasingly encouraged to shift their agricultural production out of traditional crops to value-added crops like mushrooms for processing. The United States and the EU countries were the second and third largest global producers, respectively, in 2007, other important global producers included Canada, Japan, India, Australia, and Indonesia. Countries showing noticeable increases in production included China, Spain, Poland, and Ireland. The production in most of the remaining countries decreased slightly or remained almost the same.

Global Consumption: In 2007, global consumption amounted to 3.3 million tons and China, the EU countries and the United States were the leading global consumers of mushrooms. Other major consumers included Canada, Japan, Russia, Australia, and India. Virtually all consumption in China, the EU, and India was supplied from domestic production. On the other hand, virtually all Russian consumption was supplied by imports. Finally, consumption in the United States, Canada, Japan, and Australia met mostly by domestic production but also by significant quantity of imports.

Global Trade: Global exports of canned mushrooms amounted to 458,137 tons in 2008, up by 25 per cent from 365,967 tons in 2004, with China accounting for 87 per cent of total export volume in 2008 and for nearly all the rise in global exports during the report period. The increase in exports from China through 2008 resulted from a fall in freight rates from China to most global markets in 2007–08. Other major global exporters in 2008 included Indonesia and India, although export levels from Indonesia remained almost the same throughout the 2004–08 period and exports from India during the same period were down because of intense competition from Chinese exports. Global exports of fresh mushrooms averaged around 43,730 tons during 2004–07 before falling to 34802 tons in 2008. Canada and the United States were the largest global exporters of fresh mushrooms in 2008, together accounting for nearly 80 per cent of the total, with most exports from both countries shipped to each other. Other major exporters in 2008 were Malaysia and Mexico. Most of the fall in exports of fresh mushrooms from 2007 to 2008 was accounted for by a drop in exports from China, where a greater share of fresh mushroom production was processed and mushroom growers in China switched into production of other crops. Exports from traditional supplier Canada also fell following a decision by Canadian shippers to concentrate in their home market as a result of an unfavourable change in the US-Canada exchange rate. Global imports of canned mushrooms amounted to 292,267 tons in 2008, up by 12 per cent from 260,944 tons in 2004, with the United States and Russia accounting for the largest individual shares of total import volume in 2008. Global imports of fresh mushrooms amounted to 90,879 tons in 2008, up by 42 per cent from 63,618 tons in 2004. Russia and the United States together were the most important global import markets in 2008. Canada, Norway, Malaysia, and Ukraine were other major markets. The rise in imports from 2004 to 2008 was due to a rise in Russian imports, with Russia becoming the primary market for Chinese mushrooms in 2007 and 2008.

Production and exports from Asia: China, India, and Indonesia are the three most important global mushroom exporting countries in Asia. All three countries became the major suppliers of canned mushrooms to the US market since 2003-04, together accounting for 86 per cent of total US canned-mushroom import volume in 2007-08. All three Countries have mushroom canning industries that are export oriented, with US market a primary destination for their production, and all face barriers to their exports in certain third-country markets.

China: China has become the leading global producer of mushrooms and exporter of canned mushrooms since 2004. China's dominance has occurred even though most Chinese growers are using growing methods considered rather primitive and low technology relative to those used in the United States and other major producing countries. China's common-

mushroom industry consists of thousands of small-volume family-run growing operations nationwide, employing mainly family labour. Common and specialty mushrooms are grown in sheds made of bamboo, straw, and clay, or in caves, without any mechanical climate control which limits production to the cooler months of October–December and March–May. Since 2003-04, mushroom canning in China is being done in number of very modern facilities. The Bluefield Industrial Food Company started production in 2004 and is one of only a few canneries that export products which do not have to pay any antidumping duties. This cannery, with an estimated production capacity of 80,000 tons of canned foods including mushrooms, is reported to have received FDA registration for processing low-acid canned foods and Hazard Analysis and Critical Control Point (HAACP), Quality Control Certification. COFCO Industrial Food import & Export Co., a subsidiary of COFCO Corporation, also operates a modern cannery and is reported to account for 10 per cent of Chinese canned mushroom exports in recent years. Dujiangyan Xingda Foodstuff Co., another exporter of canned mushrooms to the United States, also operates 56 modern mushroom-growing houses.

India: India produces about 250 thousand tons of edible mushrooms annually (author's assessment on spawn consumption). The Indian mushroom industry is made up of a few very modern growing and processing facilities. Agro Dutch estimated production capacity of 50000-60000 metric tons of fresh mushrooms for canning annually. In 2003-04, has accounted for an estimated 25 per cent of all U.S. imports of canned mushrooms to Canada, Mexico, Israel, and Russia. A second Indian mushroom grower and processor, Himalaya International also has a state-of-the-art, ISO certified, and HAACP compliant mushroom production facility including canned mushroom processing operation with an anticipated production of 9,000 metric tons of canned mushrooms annually. There are scores of smaller units of 200-500 TPA capacity (about 35-40 units) with climate controlled facility growing button mushrooms in almost all regions of the country in India, growing mainly button mushrooms for local market. These smaller units are located in Tamil Nadu, Haryana, Punjab, Uttar Pradesh, Maharashtra, Gujrat, Himachal Pradesh, West Bengal, Sikkim, Assam and other places in the country, besides the seasonal growing activity in western plains of India in winter months.

Indonesia: The Indonesian mushroom-canning industry has accounted for a major share of US canned mushroom imports since 2003-04, with nearly all such imports in retail-size cans, and the US market continues to be the principal export market for Indonesian products. ETIRA, an integrated mushroom growing, harvesting, and processing operation, grows 12775 tons of fresh mushrooms annually for canning and export. A number of other firms, including Aneka Janur, Jamur Bersaudara Dara PD, Jamur TC 99 Toko, Indo Evergreen Agro Business Corp. PT, and PT Karya Kompos Bagas, are selling canned mushrooms produced in their own or other firm's canneries.

Mushroom production, consumption and trade in European Union countries-2012: The EU is a global producer of mushrooms and has been for a number of years. In EU countries, the largest canned production in 2007 were from The Netherlands, Spain, Poland, France, and Italy, with The Netherlands accounting for nearly one-fourth of total EU production in 2007. Most mushrooms produced in the EU are traded within member countries and the EU is not a global exporter to non-EU countries. Countries shipping the greatest share of canned mushrooms within the EU in 2007 were the Netherlands, Spain, Poland, France, and Germany. Since its entry into the EU, Poland has become the EU's largest-volume producer of fresh mushrooms, growing more than 238000 tons of mushrooms annually. The mushroom industry in Poland is composed of more than 2000 mushroom farms, ranging in size from many small family-run farms to some large operations. The mushrooms produced are of high quality and the production facilities are technologically advanced. The costs of labour (mainly Romanian workers), energy, and supplies are less than those in the United States, and the capital investment by Polish growers, especially in their composting operations, is high. The combination of high-quality product and low production costs has enabled mushroom growers in Poland to ship fresh mushrooms even to some non-EU member countries.

Germany's per capita annual mushroom consumption of 3.2 kg is one of the highest, while as the quantity of mushrooms produced in the country is not very large (JA Lelle, Jan, 2014). In 2012, German production was nearly 62,000 tons, well below the production figures of the leading European nations such as Poland (238,000 tons), the Netherlands (250,000 tons), France (108,000 tons) and Spain (98,000 tons). Based on a survey by the German Mushroom and Edible Fungus Growers Association, to which nearly all German mushroom growers belong, 54,000 tons of the total production was sold on fresh markets and 8,000 tons in processed form. These production levels remained stable compared to the previous

year, although some producers have expanded their capacity while others have ceased mushroom production altogether. Since the previous year yielded very poor straw, which (along with horse manure) is the basis of the mushroom cultivation substrate, net revenues for the past two years were slightly lower than usual. The key edible fungus cultivated in Germany is still the common white button mushroom *Agaricus bisporus*. Although other cultivated fungi such as the king oyster mushroom *Pleurotus eryngii*, the commonly grown oyster mushroom *Pleurotus ostreatus* and shiitake mushroom *Lentinula edodes* are slowly catching up, production of these mushrooms in Germany for the year 2012 totalled only about 2000 tons.

Changing Consumption scenario in Germany: Mushroom consumption is increasing slowly but steadily. In 2011, sale of fresh mushrooms in Germany increased by nearly 2% following an 8% rise in the previous year. In 2010, a generally tight supply of vegetables in the country had a distinctly stimulating effect on the market for the button mushroom, by far the most important fungal species. When the food trade was searching for cheap promotional items in 2010, they often resorted to mushrooms. This additional impulse faded away in 2011 because fresh vegetables were conveniently available throughout the year. Nevertheless, sales rose by 2%, in line with the growth rate for fresh vegetables overall. Consumer prices for mushrooms have now risen again slightly after a drop in 2010. Consumer spending grew by almost 5%, which is clearly a better result compared to that for fresh vegetables (-4%). A point worth noting is that demand for chestnut mushroom shiitake is increasing slowly but steadily in Germany. According to Mr Jochen Winkhoff, General Manager of the German Mushroom and Edible Fungus Growers Association, the high point of the market for chestnut mushrooms is generally reached in the autumn. Since chestnut mushrooms have a higher dry matter content, their taste is particularly intense. A survey of distributors in the trade press suggests that the increasing consumption of chestnut mushrooms is not the white button mushroom. Therefore, it is possible to state that there is a slow increase in the overall consumption of mushrooms in Germany. This trend is also supported by the relevant statistics. The trend towards buying chestnut mushrooms continued in 2011 and 2012. Market share by volume purchased increased from 19% to almost 22%. In terms of expenditure, it is now as much as 29%. The market share of organic mushrooms has increased too, but their proportion of overall mushroom consumption is still low. The share of organic products is now just under 3% of the volume of fresh mushrooms purchased. It is over 6% in terms of spending, although most of the organic mushrooms sold are of expensive chestnut variety. The majority of mushrooms consumed are imported. A good 50% of the fresh mushrooms consumed in Germany are imports. As already stated, domestic production for the fresh market is about 54,000 tons. Of this, however, approximately 6,000 tons are exported. An additional 8,000 tons of German mushrooms are processed. Imports of fresh mushrooms were about 62,000 tons in both 2011 and 2012. The Netherlands and Poland are the main suppliers of fresh mushrooms, each accounting for approximately 30,000 tons. Hungary follows in third place, but with only 500 tons. Hardly any other edible mushrooms are imported into Germany in any quantity. One exception is fresh *Cantharellus cibarius* mushroom collected from wild, large quantities of which are brought into Germany from eastern Europe (Poland, Belarus and the Baltic States).

Canada: As in the United States, the most commonly grown mushroom throughout Canada is the common white mushroom. Mushroom production is located principally in two provinces, with Ontario and British Columbia accounting for 57 and 37 per cent, respectively. Of the total in 2008, 76 tons. In 2008, Canada was a net exporter of fresh mushrooms but a net importer of canned mushrooms.

Mexico: Although extensive data on the mushroom growing and processing industry throughout Mexico are not available, Mexico is growing in importance as a supplier of fresh and canned mushrooms to the U.S. market. Commercial mushroom production of common white, portabella, and cremini mushrooms is centered in the San Miguel de Allende area of Guanajuato state. A US -owned facility in San Miguel de Allende that grows and processes mushrooms is described as the single largest growing operation in Mexico. The company covers about 90 acres and accounts for the growing and processing of about 20 million pounds of mushrooms annually. The facility is vertically integrated, consisting of a spawn centre, large composting areas, growing rooms, cold storage for warehousing fresh mushrooms, and a cannery. The production of fresh mushrooms for shipment principally to the United States has risen since 2003/04, encouraged by the strength of the U.S. dollar vis-à-vis the Mexican peso and supported by US investment from Monterey Mushrooms, Inc.