

# CODEX ALIMENTARIUS COMMISSION



Food and Agriculture  
Organization of the  
United Nations



World Health  
Organization

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: [codex@fao.org](mailto:codex@fao.org) - [www.codexalimentarius.org](http://www.codexalimentarius.org)

Agenda Item 5

CAC47/CRD31 Rev.1  
Original Language Only

## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

### CODEX ALIMENTARIUS COMMISSION

Forty-seventh Session

Geneva, Switzerland, CIGG

25-30 November 2024

## PROPOSAL FOR THE DEVELOPMENT OF STANDARD FOR WHOLE MILLET GRAINS

(Prepared by India)

### DISCUSSION PAPER ON THE DEVELOPMENT OF A GROUP STANDARD FOR WHOLE MILLET GRAINS

#### BACKGROUND

India proposed development of a group standard for certain type of millets under Agenda item 14 (any other business) in 46<sup>th</sup> meeting of Codex Alimentarius Commission (CAC) held from 27<sup>th</sup> November to 2<sup>nd</sup> December, 2023. CAC46 welcomed the proposal from India to develop a group standard for certain types of millets to reflect the growing international trade in these products, and that the Codex Secretariat would further assess the proposal for completeness and issue a CL to solicit comments from Members and Observers before possibly bringing it to the attention of CCEXEC for critical review and thereafter consideration by CAC47 for approval as new work.

#### INTRODUCTION

Millets are group of small grained cereal food crops which are highly nutritious and are grown under marginal/low fertile soils with very low farm inputs such as fertilizers and pesticides. Millets are grown in regions with low rainfall and thus resume greater importance for sustained agriculture and food security. Based on area grown and its grain size millets are classified as major millet and minor millets (also known as small millets).<sup>1</sup>

Millets were the first crops to be domesticated by mankind in Asia and Africa which later on spread across the globe as critical food sources to the evolving civilizations. Millets have a shorter growing duration and complete their life cycle in 2-4 months, they fit a wide range of cropping systems, and also adapt themselves to the changing environmental conditions especially during vagaries of monsoon.<sup>1</sup>

The annual global production of 25 million-ton has proved millet as a staple food for people in Africa, Asia and other parts of the world. Consumption of millet has recently decreased by 0.9% globally, however it has been projected to increase. With an anticipated increase in market of millets and millet-based products is expected by 2025, with an estimated value of over \$9 billion to over \$12 billion.<sup>2</sup>

Millets are renowned for their nutritional profile in addition to their environmental benefits. Due to their nutrient composition and with diet related non-communicable diseases becoming more prevalent, millets have returned as a viable option to a healthy diet. Their high fiber content and nature of starch

has major role in reducing the risk of diet related non communicable diseases. They are rich in proteins, vitamins and minerals and are naturally gluten free.<sup>1</sup>

Many Member countries added millets to the public food supply because of their excellent nutritional value. They ought to therefore be incorporated into any plans for changing the food system. A variety of UN Sustainable Development Goals, including achieving zero hunger, promoting overall health and wellbeing, responsible consumption and production, and addressing climate change, would thereby be met supported. Millets are important by virtue of their contribution to the means of livelihood, food and nutritional security of the poor in various parts of the world and they diversify our food basket.<sup>3</sup>

**TABLE 1. List of Millets for which a group standard may be established**

Category	S.No	Common Name	Scientific name	Vernacular names	Suggested origin	Major Areas of Production for grains
Major millets	1.	Sorghum	<i>Sorghum bicolor</i>	great millet, guinea corn, kafir corn, aura, mtama, jowar, cholam. kaoliang, milo, milo-maize	Northeast quadrant of Africa (Ethiopia-Sudan border)	USA, Nigeria, Sudan, Mexico, Ethiopia, India, Argentina, China, Niger, Australia
	2.	Pearl millet	<i>Pennisetum glaucum</i>	cumbu, spiked millet, bajra, bulrush millet, candle millet, dark millet	Tropical West Africa	India, Western & Central Africa, Eastern & Southern Africa
Minor millets	3.	Finger millet	<i>Eleusine coracana</i>	African millet, koracan, ragi, wimbi, bulo, telebun	Uganda or neighbouring region	India, Ethiopia, Nepal, Uganda, Malawi, Burundi, Sri Lanka, Rwanda
	4.	Foxtail millet	<i>Setaria italica</i>	Italian millet, German millet, Hungarian millet, Siberian millet	Eastern Asia (China)	China, Myanmar, India, Eastern Europe
	5.	Proso millet	<i>Panicum miliaceum</i>	common millet, hog millet, broom-corn millet, Russian millet, brown corn	Central and eastern Asia	Russia, USA, Ukraine, South Korea, Kazakhstan, France, Poland, Belarus, India, Iran
	6.	Little millet	<i>Panicum sumatrense</i>	Blue panic, heen meneri	Southeast Asia- India	India
	7.	Barnyard millet	<i>Echinochloa crus-galli</i>	sawa millet, Japanese barnyard millet	Japan	India, Japan, China, Malaysia
	8.	Kodo millet	<i>Paspalum scrobiculatum</i>	Varagu, bastard, ditch, naraka, water couch, Indian paspalum, creeping paspalum, amu, Indian Crown Grass, Rice Grass	India	India, Pakistan, The Philippines, Indonesia, Vietnam, Thailand, and West Africa
	9.	Fonio	Black	<i>Digitaria iburua</i>	Fundi, hungry rice, acha, African's super grain	West Africa

		White	<i>Digitaria exilis</i>			
	Job's tear					Philippines, India, China, Siam, Myanmar and Sri Lanka.
10.			<i>Coix lacrym-jobi</i>	Adlay (Filipion), Jagradi	South-East Asia	
11.	Teff		<i>Eragrostis tef</i>	Abyssinian lovegrass	Ethiopia & Eritrea	Ethiopia, Eritrea, Australia
12.	Brown top		<i>Urochloa ramosa</i>	Korale	India	Africa, western Asia, Arabia, China, and Australia
Pseudo millets	13.	Buckwheat	<i>Fagopyrum esculentum</i>	Kuttu	China	Russia, Ukraine, France, Brazil
	14.	Amaranth	<i>Amaranthus cruentus</i>	Chaulai or Rajgira	Central and South America	Central and Latin America, China and Russia

Source: FAO, Indian Institute of Millets Research (IIMR)

- i) **Sorghum** (*Sorghum bicolor*), the origins of sorghum cultivation were found in the eastern Sudanese savannah. Today, Nigeria, the United States of America and Sudan are the largest producers of sorghum globally. Sorghum is high in copper, magnesium, phosphorus and selenium, and is a source of iron, zinc, thiamin, niacin, pantothenic acid and vitamin B6.



- ii) **Pearl Millet** (*Pennisetum glaucum*), originating in West Africa, is currently distributed widely across the semi-arid tropics of Africa and Asia, and is primarily grown in sub-Saharan Africa. Pearl millet is high in copper, iron, magnesium, phosphorus, selenium and zinc. It is also a source of thiamin and vitamin B6.



- iii) **Finger Millet** (*Eleusine coracana*), originally from Sudan, is mainly grown in Eastern Africa (Uganda, Kenya and the United Republic of Tanzania) and southern Asia (India and Nepal). While India is the largest producer of finger millets today, it is also cultivated in Ethiopia, Rwanda, Malawi, Sudan, Zambia and Zimbabwe to a lesser extent and in India it is regarded as major millet. Finger millet is high in thiamin, copper, magnesium, phosphorus and selenium. It is also a source of iron.



- iv) Foxtail millet** (*Setaria italica*), originated in northern China, before it spread to other parts of the world. Today, it is primarily grown in China, India, Afghanistan, Japan, the Democratic People's Republic of Korea, the Republic of Korea and Georgia. Foxtail millet is high in thiamin, pantothenic acid, copper, magnesium and phosphorus. It is source of iron, niacin, vitamin B6 and zinc.



- v) Japanese Barnyard Millet** (*Echinochloa esculenta*), the origins of barnyard millet are found in tropical Asia. Barnyard millet is widely cultivated in Asia, particularly in India, China, Japan, the Democratic People's Republic of Korea and the Republic of Korea. Barnyard millet is high in pantothenic acid, phosphorous and zinc. It is a source of thiamin, copper and magnesium.



- vi) Kodo Millet** (*Paspalum scrobiculatum*), originated in India. Today, kodo millet is primarily grown in damp habitats across the tropics and subtropics of the world. Kodo millets are the coarsest and digestion-friendly millets. It is high in magnesium, selenium and source of thiamin, riboflavin, copper and zinc.



- vii) Proso Millet** (*Panicum miliaceum*), the origins of proso millet go back to northern China. Today, it is mainly cultivated in China, India, Nepal, the Russian Federation, Ukraine, Belarus, the Middle East, the Republic of Türkiye, Romania and the United States of America. Proso millet is high in thiamin,

copper, phosphorus, magnesium, zinc, and sources of iron, selenium, riboflavin, niacin, pantothenic acid and vitamin B6.



- viii) Little Millet** (*Panicum sumatrense*), evidence points towards the Indian peninsula as the origin of little millet. Today, it is mainly grown in India, Sri Lanka, Myanmar, Malaysia, Nepal and China. Little millet is high in copper, magnesium, selenium and sources of thiamin, phosphorus and zinc.



- ix) Fonio** - also known as hungry millet, is originally from West Africa.

- **Black Fonio** (*Digitaria iburua*), is mainly produced in Nigeria and Niger, and also cultivated in Benin, Cameroon, Côte d'Ivoire and Togo.
- **White Fonio** (*Digitaria exilis*) white fonio is primarily grown in Guinea, followed by Nigeria, Mali, Burkina Faso, Côte d'Ivoire, Niger, Benin, Senegal and Guinea-Bissau. White fonio is high in copper and is a source of folate, magnesium, phosphorus and zinc.



- x) Job's Tears** (*Coix lacryma-jobi*), is native to the Indo-Myanmar region. They are used as food and herbal medicine in Asian countries such as China, Japan, the Philippines, Myanmar, Thailand, Sri Lanka and India. Job's tears are high in copper, magnesium, phosphorus and zinc. They are also a source of iron and thiamin.



- xi) Teff** (*Eragrostis tef*), originally from Ethiopia, is primarily grown in Ethiopia and Eritrea, where it is a major staple crop. It is also cultivated in the United States of America, South Africa, Australia, India and Kenya. Teff is high in thiamin, vitamin B6, copper, iron, magnesium, phosphorus, and a source of riboflavin, niacin and pantothenic acid.



- xii) Brown top** (*Urochloa ramosa*), originated in India, grows in rocky, shallow soils from sea level up to 8,000 ft. It is referred as miracle or positive crop for the dry and rainfed situations. The Brown top millet is known for its rapid forage production. It is cultivated in Africa, western Asia, Arabia, China, and Australia.



- xiii) Buckwheat** (*Fagopyrum esculentum*), buckwheat is native to Western China, Tibet and eastern India. It is considered as pseudo millet and is cultivated in those areas as well as in the cool, moist climates of Russia, central and southeastern Asia, Europe and USA and is considered as pseudo millet. It is gluten free and suitable for coeliacs. Contains rutin, a compound which prevents blood from clotting.



**xiv) Amaranth** (Chaulai or Rajgira), found in abundance across parts of the Americas, Africa, the Pacific Islands and Asia, *Amaranthus* spp. has antiinflammatory, astringent, blood purifying, laxative and diuretic qualities and is considered as pseudo millet. Three major species which are considered for grain production include: *Amaranthus hypochondriacus*, *A. cruentus* and *A. caudatus*. It is an excellent source of iron and B-carotene and folic acid. It is the richest source of protein, fat, phosphorus, magnesium, iron and second richest source of calcium next to finger millet.



#### Nutritional Value of millets:

Millets are major energy source and staple foods for people living in the dry and arid regions of the world. Millets possess unique nutritional characteristics specifically have complex carbohydrates, rich in dietary fiber as well as unique in phenolic compounds and phytochemicals having medicinal properties. Millets are natural source of iron, zinc, calcium and other nutrients that are essential for curbing the problem of malnutrition. They have higher content of niacin, B6 and folic acid, and calcium, iron, potassium, magnesium and zinc. Finger millet is the richest source of calcium (300- 350 mg/100 g) and other small millets are good source of phosphorous and iron. Millets are easy to digest, contain a high amount of lecithin.

**TABLE 2. Comparison of nutritional value of 100g of millet with that of rice and wheat**

Grain	Carbo hydrate (g)	Protein (g)	Fat (g)	Energy (Kcal)	Dietary Fiber(g)	Ca (mg)	P (mg)	Mg (mg)	Zn (mg)	Fe (mg)	Thiamine (mg)	Riboflavin (mg)	Niacin (mg)	Folic acid( $\mu$ )
<b>Sorghum</b>	<b>67.7</b>	<b>09.9</b>	<b>1.73</b>	<b>334</b>	<b>10.2</b>	<b>27.6</b>	<b>274</b>	<b>133</b>	<b>1.9</b>	<b>3.9</b>	<b>0.35</b>	<b>0.14</b>	<b>2.1</b>	<b>39.4</b>
<b>Pearl millet</b>	<b>61.8</b>	<b>10.9</b>	<b>5.43</b>	<b>347</b>	<b>11.5</b>	<b>27.6</b>	<b>289</b>	<b>124</b>	<b>2.7</b>	<b>6.4</b>	<b>0.25</b>	<b>0.20</b>	<b>0.9</b>	<b>36.1</b>
Finger millet	66.8	7.2	1.92	320	11.2	364	210	146	2.5	4.6	0.37	0.17	1.3	34.7
Kodo millet	66.2	8.9	2.55	331	6.4	15.3	101	122	1.6	2.3	0.29	0.2	1.5	39.5
Proso millet	70.4	12.5	1.1	341	-	14	206	153	1.4	0.8	0.41	0.28	4.5	-
Foxtail millet	60.1	12.3	4.3	331	-	31	188	81	2.4	2.8	0.59	0.11	3.2	15
Little millet	65.5	10.1	3.89	346	7.7	16.1	130	91	1.8	1.2	0.26	0.05	1.3	36.2
Barnyard millet	65.5	6.2	2.2	307	-	20	280	82	3	5	0.33	0.1	4.2	-
Amaranth	61	13.3	5.6	356	7.5	162.0	412	270	2.8	8.0	0.04	0.04	0.52	24.7
Buckwheat	71.5	13.2	3.4	344	10	18	347	231	2.4	2.2	0.101	0.425	7.02	0
Fonio	86.67	4.44	1.11	378	2.2	0	-	-	-	1.6	-	-	-	-
Job's tear	80	6.67	6.67	380	0.8	25	435	0	0	5	0.28	0.19	4.3	-
Teff	73.1	13.3	2.38	367	8	180	429	184	3.63	7.6	0.39	0.27	3.36	-
Browntop	-	11.5	-	-	12.5	0.01	-	-	-	0.65	-	-	-	-

Wheat	64.7	10.6	1.47 321	321	11.2	39.4	315	125	2.8	3.9	0.46	0.15	2.7	30.1
Rice	78.2	07.9	0.52	356	02.8	07.5	96	19	1.2	0.6	0.05	0.05	1.7	9.32

Source: Indian Food Composition Tables, NIN – 2017; Nutritive value of Indian Foods, NIN – 2007 & USDA & Plants for a future data base

## OBJECTIVE

The proposal is to develop a group standard for whole millet grains

## NECESSITY TO DEVELOP STANDARDS

CAC has developed standards for only two millets. Sorghum grains (CXS 172-1989) and Pearl millet grains (CXS 169-1989).

Declaration of the year 2023 as the “International Year of Millets”, by the United Nation led to wide awareness about millets and increased demand for the products on the basis of their nutritional value. To reflect the growing international trade in millets, it is necessary to develop a Codex standard for other millets apart from the existing two Codex standards taking a proactive approach to avoid trade issues in near future. Further, the proposal is to create a group standard as:

- Developing a group standard provides a single reference of safety and quality parameters for certain millets
- Developing individual standards for millet is difficult as each millet standard requires proposal, project document, and necessary approval each time from CCEXEC and CAC, thus it is time consuming. In case of development of a group standard, the establishment of standards could be done within a period of 3 years, so saves a lot of time.
- We can easily add other millets in these group standards if standards are to be developed for other millets in the future.

## APPROACH

While developing the group standard for whole millets grains, the scope and common quality parameters and common reference to safety parameters such as contaminants, hygiene, food additives and labelling requirements are to be considered for inclusion.

The new work will also focus on inclusion and updating of the provisions of the existing Codex standards for Sorghum grains (CXS 172-1989) and Whole and Decorticated Pearl Millet Grains (CXS 169-1989) in the group standard and the consequent revocation of the two existing standards will also be considered.

For developing the group standard, CAC will be requested to reactivate the Codex Committee on Cereals, Pulses and Legumes (CCCPL) to work by correspondence, as was done in the case of Codex Committee on Fishes and Fishery Products (CCFFP) or as may be suggested by the Codex Secretariat.

Once the EWG is established after the approval of CAC. The draft group standard would be further strengthened based on the comments of EWG members. While developing the group standard, the member countries may also provide comments/suggestions on whether there is need for including pseudo millets in the standards.

## RECOMMENDATION

It is recommended that CAC shall consider the importance and need to develop group standard taking into account that setting minimum requirements for quality parameters could be the single reference



---

point for millets. The proposed group standard will be dynamic and open to include/omit other millets in the EWG.

## PROJECT DOCUMENT

### PROPOSAL FOR THE DEVELOPMENT OF A GROUP STANDARD FOR WHOLE MILLET GRAINS

Prepared by India

#### 1. PURPOSE AND SCOPE

The purpose of the proposal is to develop a group standard for Whole millets grains. The scope of this proposed group standard applies to whole millets destined for human consumption. It does not apply to any other products including the flour derived from whole grains.

#### 2. RELEVANCE AND TIMELINES

Several Codex Members have concerns about fair trade practices affecting the international trade in perishable and non-perishable goods. This can result in restrictions or prohibitions, especially when a product is not the subject of an internationally recognized standard.

For this reason, India proposes the development of a Codex group standard for whole millet grains to reflect the growing international trade in these products. Developing a group standard for whole millet grains represents efficient use of Codex Member's time and resources. The grouping format will allow the Committee to focus on the physico-chemical characteristics, quality tolerances for allowed defects (safety and quality) and thus enabling the group standard for millets to be developed in a timely manner to address current quality and safety problems within international trade. This standard will certainly be of interest to producer countries.

#### 3. MAIN ASPECTS TO BE COVERED

This group standard includes physico-chemical characteristics, quality, contaminants and residues of agro chemicals. The most relevant items which may be considered are related to:

- Product definition: Defining the millets according to the common, trade and scientific names.
- Include the requirements for homogeneity in package and packing methods to be considered.
- Provisions for the labeling and marking of the product with reference to the CODEX standard for the labeling of pre-packaged foods.
- Provisions for hygiene, contaminants, and pesticides residues with reference to pre-existing Codex documents.
- References to Methods for Analysis and Sampling.

#### 4. ASSESSMENT AGAINST THE CRITERIA FOR THE ESTABLISHMENT OF WORK PRIORITIES

##### General Criterion

The standard will meet general criterion with regard to consumer protection and fair trade practice by:

- Promotion of consumer protection by stipulating requirements for quality of millets: and
- Ensuring fair trade practice, referring to proper product name and definition.

Criteria applicable to commodities

##### a. Volume of production and share of millets in various countries globally

Table 1 below, sets out the growth and share in production in various countries, which reached to 30463.66 million tonnes in the year 2020.

**TABLE 1. Volume of millet production in various countries and their share of global production in 2018, 2019 and 2020**

Sl.No	Country	2018		2019		2020	
		Production	Share (%)	Production	Share (%)	Production	Share( % )
1	India	11640	37.52	10235.83	36.08	12490	41
2	Niger	3856.34	12.43	3270.45	11.53	3508.9	11.52
3	Nigeria	2240.74	7.22	2000	7.05	2000	6.57
4	Mali	1840.32	5.93	1878.53	6.62	1921.17	6.31
5	China	1565.96	5.05	2300	8.11	2300	7.55
6	Ethiopia	981.96	3.17	1125.96	3.97	1218.58	4
7	Senegal	574	1.85	807.04	2.84	1144.86	3.76
8	Burkina Faso	1189.08	3.83	970.18	3.42	957	3.14
9	Chad	756.62	2.44	717.62	2.53	686.58	2.25
10	Sudan	2647	8.53	1133	3.99	484.96	1.59
Total		27293.02	87.99	24438.61	86.14	26712.05	87.69
Other countries		3726.37	12.01	3933.19	13.86	3751.61	12.31
Total		31019.39		28371.8		30463.66	

Source: Food & Agricultural Organization (FAO)

**TABLE 2. Global scenario of millets production by area and volume region wise (2019)**

Regions	Area(hectare)	Volume (tons)
Africa	498 (49%)	423 (49%)
America	53 (7%)	193 (23%)
Asia	162 (23%)	215 (25%)
Europe	8 (1%)	20 (~2%)
Australia & New Zealand	6 (~1%)	12 (~1%)
India	138 (20%)	173 (20%)
World	718	863

Source: FAO Statistics 2021

For Africa, table 3 below represents the volume of millet production

**TABLE 3. African Countries and regions with largest areas for millets production**

Region	Country	Area(million Hectare)	Volume (Million tons)
West Africa	Nigeria	5.10	4.53
	Niger	4.87	1.86
	Burkina Faso	1.23	0.78
	Mali	1.14	0.69
East Africa	Sudan	1.92	0.54
	Tanzania	0.22	0.16
Southern Africa	South Africa	0.21	0.04
	Zimbabwe	0.18	0.05

Source: African Organization for Standardization

For India, table 4 below, presents the growth in millet production that reached to 180 lakh tons in the crop year 2020-2021.

**TABLE 4. Area and volume of production of millets in India**

As on 27.10.2023 production (Tonnes) and area (million hectares)

Year	Major Millet		Minor Millets*	
	Area	Volume	Area	Volume
2013-2014	151.6	147.92	153.1	24.13
2014-2015	150.8	146.29	145.2	24.47
2015-2016	147.8	123.05	145.9	22.13
2016-2017	145.9	142.77	134	18.27
2017-2018	138.8	140.12	140	24.24
2018-2019	123.7	121.39	108.9	15.72
2019-2020	137.1	151.35	117.7	21.26
2020-2021	130.3	156.75	123.9	23.45

Source: Directorate of Economics and Statistics, Government of India. (\* minor millets include finger millet)

**b. Diversification of national legislations and apparent resultant or potential impediments to international trade**

It is necessary to develop a standard for millets in order to have an international standard that can be used to prevent technical barriers to international trade, and as a means of protecting the consumer health and guaranteeing fair trade.

At present, the quality and safety characteristics are based on existing industry trade practices and regulatory requirements from existing national and international standards and regulations, including the Codex standards, East African Standards (EAS) and ISO.

**c. International or regional market potential**

The United Nations declared the year 2023 as the “International Year of Millets”, which led to wide awareness about millets and may increase demand for the products on the basis of their nutritional value.

**International trade**

**Table 5: India Millet Export: 2023-2024 (Country wise)**

S.No	Country	USD Million
1	United Arab Emirates	12.03
2	Saudi Arabia	6.49
3	Nepal	6.11
4	USA	4.22
5	Senegal	3.71
6	Germany	3.17
7	Japan	3.1
8	Italy	2.69
9	Egypt A Republic	2.64
10	Kuwait	2.1
11	Other Countries	24.63

Source: APEDA-India (<https://apeda.gov.in/milletportal/Export.html>)

**Export of Millets-** India is among the top 5 exporters of millets in world. World export of millet has increased from \$400 million in 2020 to \$470 million in 2021.

(source: ITC trade map-  
[https://apeda.gov.in/milletportal/files/USA\\_APEDA\\_Millets\\_Catalogue.pdf](https://apeda.gov.in/milletportal/files/USA_APEDA_Millets_Catalogue.pdf))

**TABLE 6. Country wise millet export in USD million**

S.no	Exporter	2018	2019	2020	2021	2022
1	USA	1156.58	542.26	1318.35	2251.51	2663.59
2	Australia	137.69	33.59	63.95	450.41	807.08
3	Argentina	90.18	100.92	158.77	631.23	728.85
4	Russia	34.4	29.91	40.5	82.95	107.1
5	Canada	84.25	77.32	95	97.01	100.91
6	France	61.44	53.74	56.25	73.8	80.88
7	Ukraine	31.7	38.04	60.55	73.92	51.8
8	India	66.37	35.66	29.33	52.02	49.27
9	China P Rp	73.99	64.84	85.26	38.77	39.63
10	Poland	14.11	14.48	27.93	29.89	34.64
11	Lithuania	14.67	14.88	16.99	21.35	28.68
12	South Africa	13.41	10.07	12.25	9.75	28.51
13	Germany	27.24	21.55	23.25	31.7	21.69
14	Netherland	15.98	16.92	19.06	17.73	21.08
15	Tanzania Rep	2.24	7.11	5.64	16.73	16.36

Source: UN Comtrade, as reported by the Importing countries ([https://apeda.gov.in/milletportal/files/Netherlands\\_APEDA\\_Millets\\_Catalogue.pdf](https://apeda.gov.in/milletportal/files/Netherlands_APEDA_Millets_Catalogue.pdf))

**Table 7: India's export of various millets in the year 2023-2024**

S. No	Millet name	Value in USD million
1	Pearl Millet	27.66
2	Sorghum	18.48
3	Finger millet	7.73
4	Other Cereals	16.17
5	Buckwheat	0.61

Source: APEDA-India (<https://apeda.gov.in/milletportal/Export.html>)

## TRADE DATA OF MINOR MILLETS

### A. FONIO- (Source Tridge)

**TABLE 8. Top exporting countries of Fonio in 2022**

S.No	Country	Share in Export Value (percent)	Export Value in thousand USD
1	United Kingdom	32.52	54.64
2	United States	17.02	28.60
3	Netherlands	15.86	26.66
4	Togo	10.81	18.16
5	Belgium	5.50	9.25
6	Canada	4.33	7.28
7	Italy	3.44	5.79
8	Denmark	2.88	4.84

9	Germany	2.78	4.66
10	Spain	2.07	3.48

**TABLE 9. Top importing countries of Fonio in 2022**

S.No	Country	Share in Import Value (percent)	Import Value in USD
1	United States	31.2	201.98K
2	France	16.66	107.83K
3	Netherlands	13.46	87.15K
4	Italy	8.46	54.73K
5	Canada	6.38	41.26K
6	Japan	6.14	39.76K
7	Israel	4.17	27K
8	United Kingdom	4.02	26K
9	Belgium	2.05	13.30K
10	Switzerland	1.90	12.32K

**TABLE 10. Major Exporters of Fonio to World from 2015 to 2022**

S.No	Country	Export Value (Thousand \$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	213.7	331.8	362.7	225.8	498.2	262.0	356.7	168.0
1	Burkina Faso	72.6	45.3	76.8	22.3	59.8	64.5	110.9	-
2	Netherlands	46.6	6.3	49.1	27.3	47.9	29.1	102.8	26.7
3	Senegal	306.0	-	59.3	46.2	289.2	14.9	40.8	-
4	Togo	-	-	-	-	10.2	22.6	19.8	18.2
5	Spain	8.4	24.9	5.7	10.0	12.6	22.5	15.0	3.5
6	US	-	-	8.0	2.8	3.8	13.3	13.7	28.6
7	France	-	-	5.7	2.8	6.6	11.2	11.6	1.0
8	Italy	90	15	44.2	170.0	-	29.1	10.7	5.8
9	Denmark	3.3	8.0	17.0	20.8	12.7	10.7	9.7	4.8
10	Belgium	24.1	29.1	21.0	33.7	12.9	27.4	8.8	9.2

Source: Tridge

**TABLE 11. Top export trade flows of Fonio from 2015 to 2022**

S.No	Country	Export Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	213.7	331.8	362.7	225.8	498.2	262.0	356.7	168.0
1	US to New Zealand	-	-	-	-	-	-	10.1	-
2	Spain to Portugal	375.0	11.4	2.5	7.8	6.9	7.1	9.6	1.9
3	Netherlands to Belgium	3.1	12.0	465.0	-	-	34.0	9.6	131.0
4	Senegal to Italy	-	-	-	180.0	-	-	7.5	-

5	Denmark to Iceland	-	3.8	12.5	16.4	7.7	7.2	6.4	2.3
6	Spain to France	7.0	11.0	2.4	634.0	4.7	13.5	5.2	1.3
7	Belgium to Luxembourg	19.8	26.2	20.0	30.1	10.4	5.6	4.8	6.1
8	Germany to UK	990.0	1.1	1.8	3.3	2.2	3.3	4.5	3.1
9	France to UK	-	-	-	-	-	-	4.1	-
10	Canada to US	-	-	-	-	-	3.6	3.9	7.0

Source: Tridge

**TABLE 12. Top Importers of Fonio from World Total 2015 to 2022**

S.No	Country	Import Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
1	United States	39.27K	25.3K	55.47K	50.92K	58.98K	377.84K	358.98K	201.98K
2	France	47.43K	107.49K	62.14K	83.9K	135.83K	80.4K	212.34K	107.83K
3	Netherlands	1.13M	59.63K	36.55K	40	20.36K	167.2K	157.07K	87.15K
4	Italy	72.35K	37.78K	27.53K	16.31K	8.14K	17.71K	43.55K	54.73K
5	Canada	19.61K	7.2K	8.77K	6.99K	21.2K	24.45K	21.93K	41.26K
6	Japan	-	-	12.11K	-	25.96K	12.95K	28.59K	39.76K
7	Israel	-	-	-	6K	-	-	-	27K
8	United kingdom	-	39.63K	26.55K	39.46K	37.81K	38.89K	24.15K	26K
9	Belgium	53.57K	1.22K	-	1.81K	6.13K	18.91K	10.37K	13.3K
10	Switzerland	5.39K	8.28K	2.46K	3.01K	884	1.26K	4.28K	12.32K

**TABLE 13. Top Import trade flows of Fonio in 2022**

S.No	Country	Import Value in USD
1	Togo to United states	97.37K
2	Guinea to France	63.30K
3	Guinea to United States	52.61K
4	Burkina Faso to Netherlands	51.63K
5	Senegal to United States	44.94K
6	Uganda to Japan	39.76K
7	Togo to Netherlands	30.14K
8	United States to Canada	27.82K
9	Ghana to Israel	27K
10	Senegal to Italy	26.90K

Source: Tridge

## B. TEFF (Source Tridge)

**TABLE 14. Share of Top 10 exporters of Teff in the year 2022**

S.No	Country	Share in Export Value (percent)	Export Value Million USD
------	---------	---------------------------------	--------------------------

1	France	16.91	28.45
2	United States	14.9	25.07
3	Sweden	10.61	17.85
4	India	8.33	14.01
5	Belgium	7.33	12.28
6	China	7.19	12.09
7	Netherlands	5.22	8.79
8	Romania	3.99	6.71
9	Canada	3.6	6.06
10	Spain	2.82	4.75

**TABLE 15. Share of Top 10 importers of Teff in 2022**

S.No	Country	Share in Import Value (percent)	Import Value Million USD
1	Italy	14.01	17.37
2	Belgium	10.09	12.51
3	United States	8.86	10.98
4	Germany	7.07	8.76
5	Greece	6.93	8.59
6	Denmark	5.99	7.43
7	Latvia	4.94	6.13
8	France	4.90	6.08
9	Netherlands	4.15	5.14
10	Spain	4.08	5.06

**TABLE 16. Top Exporters of Teff from 2015 to 2022**

S.No	Country	Export Value (Million USD)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	204.2	175.1	164.1	183.1	178.6	187.8	189.6	168.3
1	United States	40.1	35.0	33.4	33.7	28.3	31.5	31.1	25.1
2	France	24.2	14.0	11.1	23.2	20.4	17.7	23.1	28.2
3	Sweden	4.6	7.4	6.0	5.8	8.6	11.3	16.3	17.9
4	Belgium	8.8	14.3	12.1	11.1	12.0	16.5	16.1	12.3
5	India	9.2	9.1	11.6	12.5	14.1	14.5	14.1	14.0
6	China	13.3	10.2	10.7	12.0	15.1	13.8	13.7	12.1
7	Netherlands	4.2	3.7	5.5	12.7	11.2	13.1	6.7	8.8
8	Romania	2.2	2.7	5.6	1.7	3.1	4.8	6.4	6.7
9	Canada	7.8	6.0	9.0	7.8	7.7	6.5	6.4	6.1



10	Spain	10.5	10.7	8.3	5.8	4.8	5.9	5.8	4.8
----	-------	------	------	-----	-----	-----	-----	-----	-----

**TABLE 17. Export TRADE flow of Teff from various countries 2015 to 2022**

S.No	Country	Export Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	204.2M	175.1M	164.1M	183.1M	178.6M	187.8M	189.6M	168.3M
1	France to Belgium	1.4M	5.7M	6.4M	17.0M	14.8M	7.4M	9.6M	13.4M
2	France to Spain	9.0M	5.2M	2.3M	4.1M	4.2M	6.1M	7.1M	11.3M
3	Sweden to Denmark	2.5M	2.5M	2.5M	1.6M	1.8M	877.3K	6.4M	4.2M
4	Belgium to France	2.9M	2.8M	2.6M	5.4M	4.3M	7.9M	6.1M	4.5M
5	China to South Korea	7.1M	5.6M	5.5M	5.9M	5.2M	6.4M	5.9M	4.4M
6	Belgium to Germany	687.3K	845.9K	606.9K	1.4M	3.5M	5.3M	5.2M	2.3M
7	Sweden to Germany	1.6M	2.1M	2.0M	2.0M	696.1K	7.3M	5.1M	11.6M
8	France to Germany	525.7K	84.7K	363.6K	350.7K	415.8K	1.0M	4.7M	584.7K
9	Canada to United States	5.2M	4.6M	4.6M	5.3M	5.0M	4.8M	4.2M	4.3M
10	Czech to Germany	1.5M	1.2M	1.6M	1.5M	1.9M	4.1M	4.0M	2.8M

**TABLE 18. Top importers of Teff from World from 2015 to 2022**

S.No	Country	Import Value (Million USD)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	210.5	223.2	271.1	137.4	124.9	175.0	122.1	124.0
1	United States	13.3	9.9	10.5	10.9	10.8	12.2	10.3	11.0
2	Netherlands	9.1	9.2	116.3	4.3	14.2	8.1	9.7	5.1
3	Germany	9.6	8.4	7.3	6.7	6.8	7.1	8.7	8.8
4	Greece	2.7	4.2	3.6	6.6	7.1	6.3	8.6	8.6
5	United Kingdom	6.1	5.8	6.3	4.9	6.2	5.7	8.3	4.1
6	Belgium	6.6	10.8	7.3	8.2	7.4	6.8	8.1	12.5
7	France	4.4	4.8	5.0	4.6	4.7	6.1	6.1	6.1
8	Spain	6.8	5.7	9.4	8.6	4.7	7.8	5.3	5.1
9	Italy	14.3	11.7	10.4	5.8	3.8	3.3	4.5	17.4
10	Poland	3.3	4.2	4.0	6.1	3.9	3.0	3.9	2.0

**TABLE 19. Import trade flows of Teff from 2015 to 2022**

S.No	Country	Import Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	210.5M	223.2M	271.1M	137.4M	124.9M	175.0M	122.1M	124.0M
1	Bulgaria to Greece	2.1M	3.5M	2.7M	5.6M	5.6M	4.5M	122.1M	6.5M
2	Germany to Netherlands	4.8M	4.1M	7.3M	655.1K	6.1M	3.5M	6.0M	412.1K
3	Slovakia to Hungary	13.9K	8.5K	6.5K	59.2K	-	42.0M	4.6M	-
4	Germany to United Kingdom	260.6K	68.7K	5.1K	23.5K	859.1K	1.3M	3.8M	50.8M
5	Belgium to France	1.8M	1.8M	1.8M	1.5M	2.5M	2.8M	3.2M	2.6M
6	India to Germany	3.4M	2.2M	2.9M	2.0M	2.0M	3.0M	3.1M	3.8M
7	Germany to Poland	2.4M	2.7M	2.7M	3.8M	2.7M	2.0M	3.1M	736.8K
8	India to United States	2.3M	1.9M	2.0M	2.6M	2.1M	2.6M	2.9M	3.0M
9	United States to Madagascar	-	-	-	-	-	-	2.8M	-
10	France to Spain	3.3M	2.4M	3.2M	5.1M	1.8M	3.7M	2.8M	1.8M

**TRADE DATA OF PSEUDO MILLETS****A. BUCKWHEAT****TABLE 20. Total import data of Buckwheat by various countries from India**

Total import of Buckwheat by the following countries from **India** in the years 2017, 2018, 2019 and 2020

Quantity in metric tonnes (MT)

Value in million dollars (US\$)

MILLET	COUNTRY	2017		2018		2019		2020	
		QTY	VALUE	QTY	VALUE	QTY	VALUE	QTY	VALUE
	Malaysia	-	-	204.24	0.07	147.18	0.06	105.05	0.05
Nepal	-	-	-	-	-	-	30.14	0.01	
Morocco	6.01	0.01	0	0.02	44.69	0.04	11.3	0.02	

Source: UN Comtrade as reported by the importing countries; APEDA

**TABLE 21. Total import data of Buckwheat by various countries from world**

Total import of Buckwheat by the following countries from **world** in the years 2017, 2018, 2019 and 2020

Quantity in metric tonnes (MT)

Value in million dollars (US\$)

MILLET	COUNTRY	2017		2018		2019		2020	
		QTY	VALUE	QTY	VALUE	QTY	VALUE	QTY	VALUE
Buckwheat	Kuwait	5.5	0.01	0.38	0	0	0	0	0
	Morocco	6.01	0.01	0	0.02	44.69	0.04	11.3	0.02
	South Korea	2008.99	1.33	2130.6	1.42	2017.41	1.47	4037.92	3.5
	Nepal	-	-	30.14	0.01	-	-	-	-
	Italy	-	-	10110.3	6147403.64	14039.87	7047584.26	10759.56	8415266.4
	UK	-	-	1515.42	1.98	1553.86	2	1963.87	2.46
	Malaysia	-	-	332.38	0.21	9839.9	2.5	8620.33	2.37

Source: UN Comtrade as reported by the reporting countries; Directorate General of Commercial Intelligence and Statistics (DGCIS-India)

Trade data of Buckwheat- Source: Tridge

**TABLE 22. Share of Top 10 exporters of Buckwheat in the year 2022**

S.No	Country	Share in Export Value (percent)	Export Value (Million USD)
1	Poland	14.90	13.37
2	United States	13.08	11.74
3	Lithuania	11.29	10.13
4	Latvia	11.12	9.97
5	China	9.92	8.90
6	Kazakhstan	6.39	5.73
7	Estonia	5.83	5.23
8	Netherlands	5.13	4.60
9	Germany	4.64	4.16
10	Canada	4.35	3.90

**TABLE 23. Share of Top 10 importers of Buckwheat in 2022**

S.No	Country	Share in Import Value (percent)	Import Value (Million USD)
1	Japan	15.01	28.06
2	Lithuania	3.85	15.62
3	Italy	7.97	14.90
4	Poland	7.13	13.33
5	Azerbaijan	5.93	11.09
6	Latvia	5.28	9.88
7	United States	5.06	9.47
8	China	4.68	8.74
9	Ukraine	4.32	8.08
10	France	4.14	7.74

**TABLE 24. Major Exporters of Buckwheat from 2015 to 2022**

S.No	Country	Export Value (USD)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	101.3M	89.3M	86.5M	81.5M	83.2M	102.1M	132.6M	89.7M
1	Russia	16.4M	8.0M	15.7M	17.6M	18.8M	29.0M	44.3M	-
2	Poland	7.7M	6.2M	5.5M	5.9M	5.0M	8.9M	14.0M	13.4M
3	United States	15.8M	19.9M	16.1M	14.2M	13.7M	10.6M	10.8M	11.7M
4	Latvia	3.0M	5.8M	4.4M	3.2M	5.3M	5.8M	10.8M	10.0M
5	Lithuania	12.2M	8.4M	7.9M	5.3M	7.5M	7.4M	9.7M	10.1M
6	China	24.2M	15.3M	16.4M	15.2M	12.7M	9.1M	7.5M	8.9M
7	Kazakhstan	1.5M	2.1M	1.1M	1.4M	2.6M	4.3M	6.9M	5.7M
8	Germany	1.5M	1.3M	1.7M	1.5M	1.6M	2.6M	4.2M	4.2M
9	Netherlands	4.8M	3.9M	4.3M	3.8M	2.6M	3.5M	3.6M	4.6M
10	Estonia	433.0K	473.4K	540.1K	970.3K	538.5K	1.3M	3.3M	5.2M

**TABLE 25. Top Export Trade Flows of Buckwheat from various countries 2015 to 2022**

S.No	Country	Export Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	101.3M	89.3M	86.5M	81.5M	83.2M	102.1M	132.6M	89.7M
1	Russia to China	649.7K	137.4K	1.0M	5.6M	9.1M	3.6M	12.5M	-
2	United States to Japan	14.4M	17.5M	13.8M	12.9M	12.8M	9.7M	10.0M	11.1M
3	Russia to Japan	3.6M	1.9M	3.8M	3.9M	4.2M	3.7M	6.9M	-
4	Poland to Italy	2.1M	2.4M	2.0M	2.5M	2.2M	3.3M	6.7M	6.3M
5	Russia to Ukraine	2.5M	797.6K	3.6M	852.8K	1.8M	6.3M	6.4M	-
6	Kazakhstan to Ukraine	-	109.0K	1.0M	1.3M	2.5M	4.0M	6.2M	2.6M
7	Russia to Lithuania	4.5M	2.9M	4.2M	2.9M	405.2K	2.5M	5.9M	-
8	Russia to Poland	3.1M	324.5K	696K	1.4M	280.4K	1.9M	5.7M	-
9	China to Japan	19.5M	12.6M	13.8M	12.9M	10.6M	6.8M	5.0M	6.6M
10	Lithuania to Poland	3.5M	2.1M	2.4M	2.1M	3.7M	3.7M	3.9M	4.2M

**TABLE 26. Major Importers of Buckwheat FROM 2015-2022**

S.No	Country	Import Value (USD)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	131.9M	124.9M	114.7M	113.0M	109.3M	128.3M	182.3M	186.9M
1	Japan	43.6M	36.5M	35.2M	33.4M	30.0M	22.8M	22.9M	28.1M

2	Italy	8.9M	8.8M	7.9M	6.2M	6.6M	8.2M	15.7M	14.9M
3	China	1.9M	138.4K	33.6M	6.9M	9.9M	1.2M	15.5M	8.7M
4	Poland	5.8M	2.2M	3.1M	7.2M	5.6M	7.6M	13.4M	13.3M
5	Ukraine	2.4M	2.2M	4.8M	2.3M	4.5M	14.5M	13.2M	8.1M
6	Lithuania	6.8M	4.6M	5.8M	4.3M	1.5M	2.0M	11.5M	15.6M
7	France	8.0M	7.2M	6.4M	4.6M	3.6M	5.7M	10.3M	7.7M
8	Germany	3.4M	3.0M	4.1M	3.0M	2.9M	5.4M	8.6M	7.4M
9	Ethiopia	-	-	-	-	180.0	3.0M	8.3M	-
10	Azerbaijan	1.2M	903.0K	1.0M	323.5 K	215.1K	4.5K	6.5M	11.1M

**TABLE 27. Import trade flows of Buckwheat from 2015 to 2022**

S.No	Country	Import Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	131.9M	124.9M	114.7 M	113.0M	109.3 M	128.3M	182.3M	186.9M
1	Russia to China	1.9M	136.7K	33.6K	6.9M	9.9M	1.0M	15.5M	8.7M
2	United States to Japan	16.3M	19.3M	15.4M	13.9M	14.2M	10.8M	10.2M	12.1M
3	Russia to Lithuania	4.2M	3.6M	4.6M	3.7M	396.0 K	1.2M	8.8M	12.6M
4	Poland to Italy	4.1M	5.2M	4.3M	3.0M	2.4M	4.1M	7.2M	7.1M
5	Russia to Ukraine	2.4M	771.6K	3.7M	869.7K	1.7M	6.2M	6.8M	2.0M
6	Russia to Azerbaijan	1.1M	759.7K	604.3 K	322.0K	69.4K	3.5K	6.5M	11.0M
7	Kazakhstan to Ukraine	-	109.3K	902.0 K	1.4M	2.2M	4.0M	6.0M	5.5M
8	Russia to Japan	6.2M	2.3M	4.0M	3.5M	3.9M	3.1M	5.6M	6.3M
9	Russia to Poland	3.2M	373.7K	749.2 K	1.8M	301.6 K	2.1M	5.1M	4.2M
10	Lithuania to Poland	1.8M	929.0K	1.8M	3.4M	2.5M	3.2M	4.9M	6.1M

**B. TRADE DATA OF AMARANTH (Source- Tridge)****TABLE 28. Share of Top exporters of Amaranth seed in 2022**

S.No	Country	Share in Export Value(percent)	Export Value
1	Paraguay	14.50%	\$112.39M
2	China	11.37%	\$88.10M
3	Netherlands	10.27%	\$79.61M
4	Austria	9.30%	\$72.12M
5	Canada	7.22%	\$55.96M
6	Germany	4.73%	\$36.68M

7	Spain	3.90%	\$30.22M
8	Mexico	3.77%	\$29.24M
9	Ukraine	3.28%	\$25.42M
10	Bolivia	3.00%	\$23.23M

**TABLE 29. Share of Top importers of Amaranth seed in 2022**

S.No	Country	Share in Import Value (percent)	Import Value
1	United States	17.64	\$184.67M
2	Germany	12.57	\$131.61M
3	Spain	7.56	\$79.18M
4	Netherlands	7.11	\$74.45M
5	South Korea	5.76	\$60.30M
6	United Kingdom	5.04	\$52.74M
7	Austria	3.70	\$38.78M
8	France	3.68	\$38.49M
9	Italy	3.40	\$35.61M
10	India	3.31	\$34.63M

**TABLE 30. Major importers of Amaranth from 2015 - 2022**

S.No	Country	Import Value (Million USD)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	987.2	972.2	865.6	860.4	859.9	933.7	1000	1000
1	United States	190.8	2.9	4.7	9.0	11.9	11.4	19.9	-
2	Germany	136.9	25.6	24.2	20.7	21.3	18.8	19.1	23.9
3	Netherlands	76.4	28.8	15.6	20.1	27.6	33.0	18.6	34.6
4	South Korea	50.7	11.8	11.5	15.9	17.0	14.0	16.9	15.1
5	Spain	58.9	9.6	9.0	9.8	8.5	10.1	16.1	16.4
6	Austria	66.2	10.1	13.4	20.7	27.1	23.4	13.3	-
7	United Kingdom	65.9	16.4	17.6	20.2	17.7	12.6	12.8	18.7
8	France	18.9	12.0	9.8	3.5	3.7	4.0	12.7	17.6
9	Italy	13.9	14.2	12.0	10.1	8.3	10.9	12.1	14.4
10	China	16.7	11.0	10.4	11.2	11.5	13.0	11.9	18.8

**TABLE 31. Top Import trade flows of Amaranth from 2015-2022**

S.No	Country	Import Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	987.2M	972.2M	865.6M	860.4M	859.9M	933.7M	1.0 B	1.0B
1	China to South Korea	43.7M	39.5M	39.6M	35.3M	44.5M	53M	55.0M	43.6M
2	China to United States	55.6M	51.7M	42.6M	43.8M	58.7M	76M	51.5M	51.7M

3	China to Netherlands	38.1M	34.8M	28.2M	21.7M	25.2M	26.9M	32.9M	29.4M
4	China to Germany	60.0M	34.0M	21.7M	23.6M	19.2M	27.9M	32.1M	31.3M
5	China to Spain	26.1M	27.41M	24.7M	19.7M	21.3M	22.4M	31.6M	43.6M
6	Paraguay to US	24.0M	13.4M	12.5M	19.4M	24.9M	24.7M	27.2M	42.1M
7	Austria to Germany	17.9M	28.1M	22.8M	19.7M	19.3M	25.3M	26.2M	28.6M
8	China to UK	35.1M	25.4M	16.4M	20.2M	19.1M	21.9M	24.7M	27.1M
9	Ethiopia to US	17.2M	31.9M	18.6M	18.0M	10.4M	9.9M	19.3M	12.3M
10	Mexico to China	105.9K	175.1K	759.6K	2.2M	2.8M	7.0M	18.7M	10.6M

**TABLE 32. Major Exporters of Amaranth seeds from 2015-2022**

S.No	Country	Export Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	738.7M	819.8M	749.2M	791.2M	882.2M	866.7M	874.5M	775.2M
1	China	94.2M	92.6M	100.6M	102.2M	111.7M	104M	106M	88.1M
2	Netherlands	44.8M	63M	50.4M	56.9M	61.2M	68.2M	74.3M	79.6M
3	Paraguay	34.8M	26.8M	33.8M	37.8M	49.4M	49.3M	63.6M	112.4M
4	Canada	62.3M	104.7M	56.4M	51.2M	67M	82.9M	59.7M	56M
5	Austria	40.2M	49.7M	52.6M	49.9M	44.6M	57.7M	58.9M	72.1M
6	Burkina Faso	37M	38M	30.8M	41.7M	66.5M	45.5M	42.6M	-
7	Germany	43.7M	34.7M	31.5M	32.8M	32.1M	42.1M	37.6M	36.7M
8	Spain	16.8M	19.5M	19.8M	21.6M	21.4M	27.9M	34.9M	30.2M
9	Vietnam	544.4K	7.9M	14.8M	17.9M	15.2M	17.5M	29.2M	-
10	Bolivia	44.9M	26.8M	27.2M	28.2M	19M	22.1M	27.2M	23.2M

**TABLE 33. Top export trade flows of Amaranth from 2015-2022**

S.No	Country	Export Value (\$)							
		2015	2016	2017	2018	2019	2020	2021	2022
	World	738.7M	819.8M	749.2M	791.2M	882.2M	866.7M	874.5M	775.2M
1	Canada to US	55.8	53	43.5	44.6	59.6	76.9	52.2	52.6
2	China to South Korea	39.6	36.4	39.1	35.7	42.5	51.5	51.7	35.3
3	Austria to Germany	21.6	33.5	34.3	31.9	26.7	32.4	30.6	41.5
4	Paraguay to US	16.4	12.6	10.4	19.2	22.6	23.9	28.7	33.1
5	Vietnam to China	286.8K	7.8	10.9	17.3	13.8	15.2	26.4	-
6	Benin to Denmark	-	-	16.8	33.1	29.8	31.6	23.7	11

7	Netherlands to Germany	14.1	17.2	12.7	14.5	14.2	16.2	20.2	22.6
8	Burkina Faso to Ghana	11.5	7.8	9.3	15.5	29.1	17	18.3	-
9	Burkina Faso to Denmark	15.1	25.6	17.9	21.6	31.4	27.3	17.7	-
10	China to Spain	6.3	5.1	6.2	5	4.3	6.5	13.8	11.2

#### **d. Amenability of commodity of standardization**

The standardization of millets has already been initiated on certain millets and on certain aspects to consumer's protection and trade facilitation. Developing a group standard would facilitate global trade.

The characteristics that determine the commercial quality of millets, for example, the definition of the group of millets, classification by grain size or quality etc. are all amenable to standardization.

#### **e. Coverage of the main consumer protection and trade issues by existing or proposed general standards**

There is no group standard covering millets however there are existing Codex standards for Sorghum grains (CXS 172-1989) and Whole and Decorticated Pearl Millet Grains(CXS 169-1989). Therefore, the new work will facilitate trade by establishing an internationally agreed group standard encompassing a range of millets in a single reference comprehensive standard.

#### **f. Number of commodities which would need separate standards including whether raw, semi-processed or processed**

The proposal is to develop a group standard for millet grains.

#### **g. Work already undertaken by other international organizations in this field and/or suggested by the relevant international intergovernmental body(ies)**

CAC has adopted the following standards:

- Standard for Sorghum grains CXS 172-1989
- Standard for Whole and Decorticated Pearl millet grains CXS 169-1989

The African Organization for Standardization has adopted the following standards:

- East African Standard: EAS 785:2013- for finger millet grain
- East African Standard: EAS 284:2013- for pearl millet grain
- East African Standard: EAS 757:2013- for Sorghum grain

The International Organization for Standardization (ISO) has adopted the following standard for cereals and cereal product which also applies to certain millets:

### **5. RELEVANCE TO THE CODEX STRATEGIC OBJECTIVES**

The proposal for the elaboration of a group standard for millets is in line with the following strategic objectives of the Codex Strategic Plan 2020-2025:

**Goal 1:** Codex will need to be proactive and flexible and to respond in a timely manner to the opportunities and challenges that result.



**Goal 3:** Increase impact through the recognition and use of Codex standards. Achieved by the identification of new products which are internationally traded and need to be standardized in order to guarantee food safety and fair trade in millets.

**Goal 4:** Facilitate the participation of all Codex Members throughout the standard setting process. Through a new proposal from a developing country.

Grouping of the millets will not only make the standard efficient, and user-friendly, but organizing these various millets in a single location will increase the impact and will make the standard more recognizable across the globe.

## **6. INFORMATION ON THE RELATION BETWEEN THE PROPOSED AND OTHER EXISTING DOCUMENTS AS WELL AS OTHER ONGOING WORK**

Apart from standards for Sorghum and Pearl millet, there are no Codex standards for the above mentioned millets. The horizontal rules on food safety drafted by the Codex general subject committees relevant to foods and/or cereals, will usually apply and this group standard will include references, as follows:

- (a) General Principles of Food Hygiene (CXC 1-1969)
- (b) Principles and guidelines for the Establishment and Application of Microbiological Criteria related to Foods (CXG 21-1997)
- (c) Maximum limits for pesticide residues adopted by Codex.
- (d) General Standard for Contaminants and Toxins in Food and Feed (CXS 193-1995)
- (e) General Standard for the Labelling of Prepackaged Foods (CXS 1-1985)
- (f) Recommended Methods of Analysis and Sampling (CXS 234-1999)

## **7. IDENTIFICATION OF ANY REQUIREMENT FOR AND AVAILABILITY OF EXPERT SCIENTIFIC ADVICE**

There is none identified now, but experts on millets will take part via Codex Member or Observers.

## **8. IDENTIFICATION OF ANY NEED FOR TECHNICAL INPUT FROM EXTERNAL BODIES**

No need for technical input from external bodies has been identified. If necessary, the relevant organizations will be able to take part in the development of the group standard through their status as Codex Observers.

## **9. PROPOSED TIMELINE**

Development of this group standard would be expected to take three years or less, depending on the degree of consensus in discussion of the standard at an international level.