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The Market for Organic Chickpeas in Germany and the United States

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List of abbreviations

AgMRC	Agricultural Marketing Resource Center
ave	average
b	billion
¢	cents
C & F	Cost & Freight
CBI	Centrum Bevordering Import (Netherlands)
CFR	Code of Federal Regulations
CIF	Cost insurance freight
EPA	Economic Partnership Agreements
Est	Estimated
EC	European Commission
EU	European Union
€	Euro
FAO	Food and Agricultural Organization
FDA	Food and Drug Organization
FDF	Food and Drink Federation
FOB	Free on board
g	gram
GPO	Government Publishing Office
HS	Harmonized Commodity Description and Coding System
ITC	International Trade Commission
k	thousand
kg	kilogram
lb	pound
m	million
MFN	Most Favored Nation
MT	metric ton
No.	number
oz	ounce
SITC	Standard International Trade Classification

t	ton
UN	United Nations
US	United States
US$	United States Dollar
USDA	United States Department of Agriculture
USADPLA	United States of America Dry Pea and Lentil Association
USPLTA	United Stated Pea & Lentil Trade Association
VAT	Value Added Tax
VRG	Vegetarian Resource Group
WTO	World Trade Organization

Executive summary

This survey compares opportunities in German and US markets for exporters of organic chickpeas. Organic chickpeas are increasingly popular in both the US and Germany due to the trends toward healthier diets and food with greater nutritional value, choosing organic over non-organic, and the growth of vegan and vegetarian diets.

The food category “pulses,” including dried beans, edible peas, lentils and chickpeas, was given special attention in 2016, as the United Nations declared 2016 the International Year of Pulses. Further, the number of and the attendance at relevant trade fairs in both the US and Germany has been increasing substantially.

While there is no production of organic chickpeas in Germany, the country continues to increase imports as estimated consumption continues to increase. The US produces organic chickpea, but also imports a large amount of what is consumed. In both Germany and the US, the import prices of chickpeas have been decreasing, however the prices at wholesale and retail levels have remained stable.

Market access is not expected to change in Germany and the US. Regarding the distribution of organic chickpeas, the role of suppliers and service providers may become increasingly important in the future in both countries. However, the organic market in Germany is more attractive as it is much more diversified.

Commercial practices are expected to be stable. The packaging and labeling in the US might become more stringent whereas the packaging in Germany already is. Finally, the sales promotion through trade fairs and trade magazines is increasing due to the growing interest in organic products and in a healthy, vegetarian diet.

As a conclusion, both the US and Germany are very attractive countries for the sales of organic chickpeas.

1. Product description

International classifications

This export opportunity survey covers the market for organic chickpeas in the US and Germany. Chickpeas are classified using the following industry codes:

- HS: 071320 Chickpeas (garbanzos), seeds of a kind used for sowing, beans (Vigna spp, Phaseolus spp);
- SITC: 05422 Chickpeas, dried, shelled
- NAICS: 111130 Dry peas & beans
- NACE: 01112 Growing of legumes

It is important to note that these classifications do not differentiate between organic and non-organic chickpeas.

Figure 1: Chickpea Bunch

Source: USA Dry Pea & Lentil Association

Cicer Arietinum

Chickpea, officially named Cicer Arietinum and most commonly referred to as “chick pea” or “garbanzo bean,” may also be known as Bengal gram, grams, or cici bean (New World Encyclopedia, 2008). They are categorized as ‘pulses’ along with dry peas and lentils (Garden-Robinson, 2012), and are considered one of the world’s oldest and most important legumes, with traces found 8000-9000 years ago in Turkish Kurdistan of the Fertile Crescent (Ladizinsky & Alder, 1976).

Chickpeas are most commonly grown in warm temperate and subtropical regions, mainly in India, Pakistan, Ethiopia, Turkey and Mexico (Hanelt, 2001). Specifically, organic chickpeas are grown "without the use of pesticides, synthetic fertilizers, sewage sludge, genetically modified organisms, or ionizing radiation" (Organic.org, 2016). Currently, India is the largest producer, consumer, and importer of chickpeas, but chickpeas are also important to the industries in Australia, Canada, and the US. They create income for small farmers in Africa (CGIAR, 2013). The two main kinds of commercial chickpeas are Desi, which are small and dark, and Kabuli, which are larger and lighter in color. Kabuli is believed to have been a mutation of the original Desi chickpea, and is the more popular of the two worldwide (Singh, 1997).

Uses

Chickpeas are most commonly used for human consumption. They go through several processing stages before consumption, including "cleaning, drying, sorting, splitting, milling, and fractioning." These processes are mostly mechanical and performed at processors, which may or may not be located at the farm (USADPLA, 2010). Considered nutritious, they provide high levels of protein, complex carbohydrates, iron, magnesium, phosphorus, and zinc, while containing no cholesterol and low levels of fat and sodium. They also contain phytochemicals, which may reduce the risk of certain types of cancer and other diseases (Garden-Robinson, 2012). Table 1 shows chickpea nutritional information.

Table 1: Chickpea Nutritional Information

Nutrient, per cup, cooked	Reference Diet	Chickpeas
Calories (kcal)	2,000	269
Total Fat (g)	Less than 65	4.3
Saturated Fat (g)	Less than 20	0.4
Trans Fat (g)	No value set; minimize in diet	0
Cholesterol (mg)	Less than 300	0
Sodium (mg)	Less than 2,400	11
Total Carbohydrate (g)	300	45
Fiber (g)	25	12.5
Protein (g)	50	14.5
Vitamin A (IU)	5,000	44
Vitamin C (mg)	60	2.1
Calcium (mg)	1,000	80
Iron (mg)	18	4.7

Source: U.S. Department of Agriculture, Agricultural Research Service. National Nutrient Database for Standard Reference

Chickpeas can be eaten raw as a snack, but are commonly cooked and served in salads, salsas, stews, and soups, ground into flour. They may also be ground and fried into falafel, cooked and ground into hummus and curries, and even fermented to make an alcoholic drink (New World Encyclopedia, 2008). The legume is popular in poor cultures that may not be able to afford protein, and in vegetarian diets.

Other uses of chickpeas include inputs in animal feed and in farming systems. Due to their high protein content, which is beneficial for animal energy, byproducts of chickpeas may be found in feeds for ruminants, pigs, poultry, rabbits, and fish (Heuzé et al., 2015). Farming systems may benefit greatly from using chickpeas in the rotation. Pulse Australia (2016) names the following advantages of chickpea rotations:

- Chickpea is a break crop that can be used successfully in rotations to effectively break the lifecycle of cereal root diseases like take-all and crown rot.
- Chickpea plants fix their own nitrogen.
- Chickpeas have an extensive and deep root system.
- Chickpea can be sown relatively late compared to wheat, which can spread the demand for machinery and labor.
- Deep sowing into stored soil moisture is an option with chickpea.

2. Production, foreign trade & consumption

Production

Annual global production of chickpeas is about 12.4 million tons, which grows across 13.2 million hectares. On average, over the past half century, world chickpea production has increased 1% per year.

Table 2 shows that in 2013 66% of the world chickpea production took place in India. Australia contributed 6% to the world chickpea production, followed by Pakistan with 6%. Producer prices in Turkey and Iran for chickpeas were the highest, at around US$ 1,150 per ton, while Australia and Ethiopia charged the least, around US$ 410 per ton, on average.

Table 2: Top 10 Producers of Chickpeas 2009-2013

Country	2009			2010			2011			2012			2013			Market Share	Ave Price (US$/t)
	Value (mUS$)	Volume (kMT)	Price (US$/t)	Value (mUS$)	Volume (kMT)	Price (US$/t)	Value (mUS$)	Volume (kMT)	Price (US$/t)	Value (mUS$)	Volume (kMT)	Price (US$/t)	Value (mUS$)	Volume (kMT)	Price (US$/t)		
India	2794	7060	-	2969	7480	-	3251	8220	-	2988	7700	-	3433	8832	-	66	-
Australia	208	445	357	282	603	396	242	513	416	318	673	471	385	813	-	6	410
Pakistan	156	740	-	122	651	0	53	496	-	241	284	-	228	751	-	6	-
Turkey	213	563	930	200	531	1063	181	487	1262	196	518	1488	190	506	1294	4	1207
Myanmar	110	404	-	121	441	-	130	473	-	138	500	-	135	490	-	4	-
Ethiopia	132	285	397	150	323	301	187	400	390	195	410	571	117	410	-	3	415
Iran*	77	209	744	102	268	736	113	290	1083	126	315	1673	116	295	1376	2	1122
Mexico	62	132	572	61	132	622	31	72	724	120	272	804	78	210	979	2	740
Canada	33	75	506	59	128	591	41	85	707	75	161	690	79	169	571	1	613
USA	3	65	597	15	88	622	22	100	822	22	151	769	22	161	661	1	694

*Islamic Republic of Iran

Source: UN Food and Agricultural Organization, 2016

Foreign trade

World exports

Table 3 shows that Australia has consistently been the largest exporter as measured both by quantity (54%) and by dollar value (50%). The second largest exporter is India. Chickpea export prices decreased 20% by the end of the analyzed time frame.

Table 3: Top 10 Chickpea Exporters																
Country	2011			2012			2013			2014			2015			Ave Price (US$/kg)
	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	
World	981	1.212	0,81	1.512	1.870	0,81	1.135	1.612	0,70	1.010	1.667	0,61	1.527	2.357	0,65	0,72
Australia	298	527	0,57	588	919	0,64	300	551	0,54	295	605	0,49	763	1.287	0,59	0,57
Russia*	69	99	0,69	102	161	0,63	68	180	0,38	109	312	0,35	154	326	0,47	0,50
India	224	177	1,26	184	144	1,28	347	401	0,87	180	209	0,86	173	188	0,92	1,04
Mexico	70	52	1,33	251	212	1,18	130	114	1,15	185	182	1,02	144	131	1,10	1,15
Canada	68	71	0,96	48	47	1,02	46	54	0,86	41	58	0,71	75	114	0,66	0,84
Argentina	56	53	1,05	84	86	0,97	50	66	0,75	27	44	0,61	38	64	0,59	0,80
Tanzania**	12	21	0,54	20	29	0,68	12	31	0,38	19	42	0,46	30	52	0,57	0,53
USA	45	64	0,70	72	78	0,92	52	54	0,97	44	52	0,83	38	47	0,82	0,85
Ethiopia	35	49	0,71	55	74	0,74	41	66	0,62	27	51	0,53	30	45	0,66	0,65
Turkey	37	28	1,29	31	25	1,22	20	19	1,02	17	18	0,96	21	22	0,92	1,08
*Russian Federation **United Republic of Tanzania																
Source: UN Comtrade Database																

World imports

Table 4: Top 10 Chickpea Importers																
Country	2011			2012			2013			2014			2015			Ave Price (US$/kg)
	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	
World	907	1.078	0,84	1.205	1.309	0,92	1.128	1.886	0,60	830	1.134	0,73	975	1.333	0,73	0,76
India	109	143	0,76	356	472	0,75	324	538	0,60	200	381	0,53	430	688	0,63	0,65
Algeria	87	66	1,31	95	64	1,47	137	109	1,25	66	61	1,08	62	59	1,06	1,24
SAU*	26	40	0,66	34	45	0,75	38	51	0,75	34	52	0,65	41	55	0,74	0,71
Pakistan	184	280	0,66	167	215	0,78	40	61	0,65	37	60	0,61	35	54	0,64	0,67
Spain	56	39	1,44	76	56	1,36	100	85	1,18	60	59	1,03	50	51	0,98	1,20
USA	24	20	1,20	23	19	1,19	27	27	1,01	28	32	0,86	34	47	0,73	1,00
UK**	35	35	1,00	37	36	1,03	32	34	0,92	33	42	0,79	34	43	0,81	0,91
Turkey	10	8	1,14	47	35	1,33	63	57	1,10	50	41	1,22	45	37	1,22	1,20
Jordan	32	32	1,01	32	33	0,96	28	37	0,76	22	34	0,65	24	33	0,73	0,82
Italy	29	23	1,23	29	24	1,24	27	26	1,05	21	23	0,89	21	25	0,85	1,05
*Saudi Arabia **United Kingdom																
Source: UN Comtrade Database																

Table 4 shows that India accounts for about 51% of the world chickpea imports, followed by Algeria at 4%

German and US trade

Germany

Table 5 indicates that, although the import volume has been declining since 2014, on average Turkey is Germany's main source for chickpeas, accounting for 30% of imports on average. The Netherlands and Italy have been increasing their exports to Germany (20% each in 2015). Germany's average importing price per kilogram has been declining since 2011.

Table 5: Germany's Chickpea Import Sources (Top 10 per year)

Country	2011			2012			2013			2014			2015		
	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)
World	4,820	3,591	1.34	6,826	5,070	1.35	8,006	5,670	1.41	7,155	6,001	1.19	8,167	7,572	1.08
Italy	230	162	1.42	630	526	1.20	808	610	1.32	809	641	1.26	1,657	1,542	1.07
Netherlands	580	554	1.05	556	414	1.34	929	630	1.47	1,252	862	1.45	1,856	1,536	1.21
Turkey	2,439	1,535	1.59	3,076	1,812	1.70	3,185	1,799	1.77	1,850	1,211	1.53	1,681	1,199	1.40
France	93	77	1.22	152	130	1.17	211	196	1.08	380	442	0.86	379	513	0.74
Russia*	35	29	1.22	242	264	0.92	216	279	0.77	248	365	0.68	355	477	0.75
Canada	183	127	1.44	275	175	1.58	378	244	1.55	478	513	0.93	377	416	0.91
Denmark	95	147	0.65	68	100	0.68	121	154	0.78	130	173	0.75	161	290	0.56
Argentina	79	47	1.69	277	224	1.24	301	267	1.13	221	240	0.92	177	235	0.75
India	383	283	1.35	260	172	1.51	564	380	1.48	590	421	1.40	253	212	1.19
USA	170	126	1.35	224	140	1.59	190	105	1.80	204	149	1.36	194	147	1.32

*Russian Federation

Source: UN Comtrade Database

Table 6 shows that total export trade value has increased from US$ 1.6m in 2011 to US$ 2.5m in 2015. The Netherlands, Austria, and France have been the main importers of chickpeas from Germany. The average export price decreased from US$ 1.83 to US$ 1.52, and export quantity remained about the same.

Table 6: Germany's Chickpea Export Partners (Top 10 per year)															
Country	2011			2012			2013			2014			2015		
	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)
World	1,642	1,018	1.61	1,477	828	1.78	1,835	1,005	1.83	3,228	2,060	1.57	2,518	1,655	1.52
Netherlands	551	385	1.43	333	202	1.65	444	231	1.93	663	317	2.09	726	510	1.43
Poland	5	2	2.34	28	15	1.91	74	77	0.95	371	419	0.89	249	304	0.82
Austria	211	101	2.09	295	139	2.12	293	144	2.03	1,135	728	1.56	324	164	1.98
Belgium	167	136	1.23	74	53	1.39	77	36	2.11	44	17	2.59	227	127	1.79
France	161	94	1.71	157	96	1.62	196	114	1.71	184	112	1.64	189	119	1.59
Switzerland	41	20	2.07	101	52	1.95	149	79	1.88	209	129	1.62	265	106	2.50
Spain	68	49	1.37	75	52	1.43	106	75	1.41	82	62	1.31	82	66	1.24
Sweden	84	46	1.85	81	42	1.94	104	52	1.99	132	68	1.96	75	45	1.67
Denmark	46	25	1.83	43	23	1.88	55	29	1.90	24	13	1.89	37	21	1.74
Italy	51	29	1.77	27	20	1.34	10	5	1.75	27	15	1.89	27	15	1.75
Source: UN Comtrade Database															

US

Table 7 shows that Canada (69%), Mexico (17%), and Australia (5%) were the largest sources in 2015. Imported trade value increased by 44%, while the average price per kg decreased by US$ 0.47 during the period.

Table 7: US Chickpea Import Sources (Top 10 per year)															
Country	2011			2012			2013			2014			2015		
	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)
World	23,521	19,583	1.20	22,814	19,189	1.19	27,150	26,803	1.01	27,770	32,279	0.86	33,926	46,696	0.73
Canada	9,251	8,763	1.06	8,738	8,233	1.06	12,067	14,436	0.84	11,899	18,175	0.65	16,995	32,445	0.52
Mexico	5,987	4,449	1.35	7,115	5,639	1.26	7,300	6,145	1.19	7,416	6,671	1.11	9,201	7,974	1.15
Australia	2,209	2,172	1.02	1,453	1,379	1.05	2,568	2,310	1.11	2,364	2,723	0.87	2,321	2,186	1.06
India	2,196	1,561	1.41	2,418	1,696	1.43	2,802	2,080	1.35	2,903	2,326	1.25	2,214	1,704	1.30
Argentina	863	417	2.07	419	340	1.23	416	428	0.97	388	322	1.20	1,301	1,026	1.27
Turkey	1,708	1,127	1.52	1,244	755	1.65	1,066	663	1.61	2,048	1,362	1.50	1,297	953	1.36
UAE*	917	811	1.13	908	757	1.20	473	421	1.12	239	232	1.03	170	132	1.29
Israel	9	4	2.20	15	8	1.96	33	17	1.99	16	9	1.77	41	23	1.77
Italy	20	12	1.68	38	44	0.87	41	26	1.59	37	32	1.14	17	14	1.23
Tanzania**	90	69	1.30	119	86	1.37	82	55	1.49	264	287	0.92	2	2	1.11
*United Arab Emirates															
**United Republic of Tanzania															
Source: UN Comtrade Database															

Table 8 shows that Spain (27%) and India (11%) were the US' largest export markets in 2015. While the average price per kg has increased by US$ 0.12, the export quantity decreased 27% from 2011-2015.

Table 8: US Chickpea Export Partners (Top 10 per year)															
Country	2011			2012			2013			2014			2015		
	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)	Trade Value (mUS$)	Net weight (kMT)	Price (US$/kg)
World	44,817	64,354	0.70	71,830	78,023	0.92	51,741	53,576	0.97	43,541	52,249	0.83	38,487	46,834	0.82
Spain	11,979	17,220	0.70	17,925	19,409	0.92	16,432	16,413	1.00	9,863	11,992	0.82	11,082	12,649	0.88
India	4,088	6,887	0.59	10,317	10,912	0.95	1,056	1,884	0.56	7,929	8,823	0.90	4,205	5,082	0.83
Pakistan	1,911	3,181	0.60	3,466	4,017	0.86	-	-	-	2,229	3,134	0.71	3,431	4,546	0.75
Canada	5,786	7,636	0.76	4,353	5,186	0.84	3,039	3,784	0.80	1,426	1,692	0.84	2,384	3,253	0.73
Italy	4,934	6,940	0.71	3,011	2,902	1.04	3,448	2,920	1.18	4,954	5,425	0.91	2,438	2,960	0.82
Turkey	1,338	1,892	0.71	8,823	7,466	1.18	9,590	9,195	1.04	4,143	4,847	0.85	1,906	2,324	0.82
Lebanon	1,233	1,842	0.67	1,689	2,144	0.79	1,506	2,037	0.74	1,625	2,211	0.74	1,438	1,896	0.76
Algeria	1,167	1,703	0.69	2,695	2,618	1.03	663	1,100	0.60	1,030	2,028	0.51	690	1,459	0.47
Colombia	2,339	3,419	0.68	706	636	1.11	1,234	1,159	1.06	1,111	1,510	0.74	111	167	0.67
Peru	1,421	2,205	0.64	2,102	2,955	0.71	853	985	0.87	522	531	0.98	84	115	0.73
Source: UN Comtrade Database															

Apparent consumption

The estimated consumption is calculated formulas follows:

Consumption = Production + Imports – Exports

Table 9: Estimated Consumption of Chickpeas in Germany					
	2010	2011	2012	2013	2014
Production (MT)	-	-	-	-	-
Import (MT)	3,935.70	3,591.39	5,069.67	5,670.43	6,000.92
Export (MT)	905.00	1,017.98	828.04	1,004.65	2,059.69
Est. Consumption (MT)	3,030.70	2,573.41	4,241.64	4,665.78	3,941.23
Population (k)	81,752.00	80,327.90	80,523.70	80,767.50	81,197.50
Est. Con. Per Capita (kg)	0.04	0.03	0.05	0.06	0.05
Source: UN Comtrade Database, destatis.de					

Table 10: Estimated Consumption of Chickpeas in US					
	2010	2011	2012	2013	2014
Production (MT)	87.952,00	99.881,00	151.137,00	161.434,00	127.369,00
Import (MT)	20.031,47	19.582,85	19.189,42	26.802,72	32.278,62
Export (MT)	50.221,00	64.354,37	78.022,53	53.576,23	52.249,35
Est. Consumption (MT)	57.762,47	55.109,48	92.303,89	134.660,49	107.398,28
Population (k)	310.537,76	312.799,50	315.073,60	317.292,49	320.087,96
Est. Con. Per Capita (kg)	0,19	0,18	0,29	0,42	0,34
Source: UN Comtrade Database, census.gov					

Tables 9 and 10 provide the estimated consumption from 2010 to 2014. The estimated consumption per capita is much higher for the US than it is for Germany: 0.049kg for Germany and 0.34kg for the US in 2014. If consumption continues to follow the same trend, the estimated consumption per capita in Germany should grow by 11% in 2015, and by 21% in the US.

Comparison and outlook

Compared to Germany, the US import value of chickpeas is significantly higher, while the US import price per kg is lower. As of 2015, the export quantity of Germany represented 3.5% of total US quantity, while the price per kg was 85% higher.

Based on increasing imports and consumption, along with a complete lack of domestic production, the German market remains an attractive market for exporters. The US is expected to increase production and import continually, but exporting to the country remains attractive, as per capita consumption is expected to continue to be much higher than in Germany.

3. Market characteristics

Germany

Consumer preferences

Organic chickpeas are sold canned or dried (Eden, n.d.). Consumers prefer the nutty flavor, firm texture, and the high fat, calcium, B Vitamins, protein and iron content (Diefenbaker Seed Processors, 2016). Consumption of chickpeas is mainly through falafel or hummus (Konsum Dresden, 2016) or as an ingredient in salads.

Market segments

Table 11: Market Segments

Market Segment	Perceived Value
infants and young children	high nutritional value
women at reproductive age	high iron content
coeliac patients	gluten-free nutrition
overweight people	part of healthy diet
vegetarians and vegans	adequate intakes of protein, minerals, and vitamins

Source: FAO, Nutritional Benefits, 2016

Table 11 shows the different market segments and the value each segment gains from the consumption of organic chickpeas. Women and persons with high household income and a high level of education tend to buy more organic products, such as organic chickpeas (BMEL, 2016). In addition, more than 15,000 “döner” restaurants and takeaways in Germany represent a lucrative business segment by offering falafel as a vegetarian option (Posener, 2009).

Conditions of acceptance

Visible attributes customers look for when buying the common organic chickpea are a beige color, firmness, and plumpness about ⅜ inch round (Eatsmarter, 2016).

The most common reasons for buying organic chickpeas are for optimum freshness and product quality, natural taste, avoidance of pesticide residues, a fair income for the producers, and environmental protection (BMEL, 2016).

Competition

Other legumes are main competitors as they offer the same basic nutritional benefits.

In Germany, the most popular legumes are peas and beans (Mason & Boos, 2016). The German Federal Institute for Agriculture and Nutrition implemented a support strategy for protein plants including soy, lupines, and peas. However, it does not include chickpeas, which can lead to a disadvantage in competition (BLE, 2016).

Chickpeas may be a substitute for meat (VEBU, 2016), whereby other protein sources such as fish and tofu can also be stated as competitors. Long cooking times of chickpeas and the possibility of flatulence may drive consumers toward competitors (FAO, 2016C).

Demand trends

In the 20th century, chickpeas were perceived as 'poor man's food' for those who could not afford meat (FAO, 2016C). Today, chickpeas are accepted as part of a healthy and balanced diet (Groeneveld, 2016) and a representation of international cuisine (Mason & Boos, 2016). Furthermore, the United Nations named 2016 the International Year of Pulses, which drives attention to this food category (ZALF, 2016).

The increase in vegetarians and vegans has also increased demand. In 2015 there were approximately 7.8 million vegetarians and 900,000 vegans in Germany (Kreutz & Planner, 2016), accounting for about 9% of the population (VEBU, 2015).

Organic food sales increased by 127% in the last 10 years (Köpke & Küpper, 2016) and can be further expected to grow, especially in combination with the trend for a healthy diet with fresh food and meat substitution (Euromonitor, 2015).

Table 12 shows an increasing long-term development of demand with increasing positive income elasticity. 2014 shows a decline in production due to a bad harvest (AgMRC, 2016). To see the development over the past years, the calculation of the average income elasticity of demand is useful. Since the average income elasticity of demand in Germany is slightly higher than 1, it can be stated that chickpeas are not totally seen as a basic food element. This would have a value between 0 and 1. The value 1.07 shows that chickpeas have the tendency to be seen as a luxury product.

Table 12: Income Elasticity - Germany

	2010	2011	2012	2013	2014	**Average**
Estimated consumption*, MT	3.030,70	2.573,41	4.241,64	4.665,78	3.941,23	**3.690,55**
Change in quantity	-	-17,77%	39,33%	9,09%	-18,38%	**3,07%**
GDP per capita, €	32.137,00	33.673,00	34.296,00	35.045,00	36.105,00	**34.251,20**
Change in income	-	4,56%	1,82%	2,14%	2,94%	**2,86%**
Income elasticity of demand	-	-3,90	21,65	4,25	-6,26	**1,07**

Source: UN Comtrade Database, destatis.de, Statistisches Bundesamt
*see Table 9

US

Consumer preferences

Chickpeas are mainly sold canned and ready to eat. The most common uses are as an ingredient for salads, ground into flour, or processed into hummus or falafel (AgMRC, 2016).

Market segments

Chickpeas are a substantial part of the Hispanic diet, as they traditionally consume less meat. Hispanics represent about 17% of the US population (US Census Bureau, 2014). Higher income classes account for almost 75% of chickpea consumption (USDA ERS, 2016). Vegans and vegetarians are a key market segment, as they may substitute chickpeas for meat (VRG.org, 2016).

In the US, 27% of the population is obese, and with the highly nutritious features of organic chickpeas and the growing interest in a healthy and conscious diet, this may present another market segment (OECD, 2011).

Conditions of acceptance

Visible attributes customers look for when buying the common organic chickpea are a beige color, firmness, and plumpness about ⅜ inch round (Eatsmarter, 2016). In addition, desi beans, which are a little bit smaller and darker, are also popular in the US (AgMRC, 2016).

Competition

Non-organic chickpeas are a direct competitor of organic chickpeas, as the two fulfill many of the same needs. Organic chickpeas can be substituted by other pulses, including kidney beans, pinto beans or black beans, which are especially popular in the US (Nielsen, 2016B). In addition, chickpeas face competition from other meat substitutes, such as tofu.

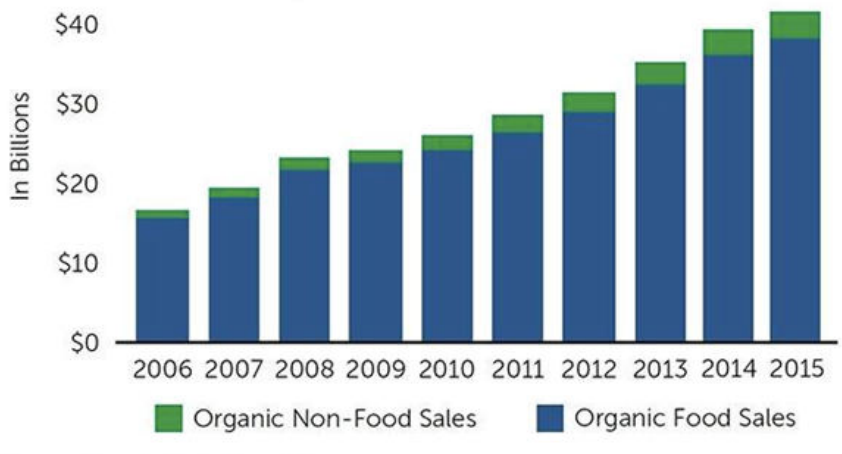
Demand trends

Dollar sales have increased by 6.4% from US$ 8.50m in 2015 to US$ 9.04m in 2016 (Nielsen, 2016A; Nielsen, 2016B). In 2016, it is estimated that 6% of people in North America follow a vegetarian diet (Nielsen, 2016C). The number of vegetarians and vegans is estimated to continue increasing in the future (VRG.org, 2016), as well as the Hispanic population (US Census Bureau, 2014). Further, the growing trend toward a healthier diet for all Americans may also cause greater demand for organic

chickpeas.

Organic food sales in the US have been increasing consistently since 2006, hitting all time high sales in 2015 of US$ 43.3b, an 11% increase from 2014 (OTA, 2016). Figure 2 shows the total US organic sales and growth from 2006 to 2015.

Figure 2: Total US Organic Sales and Growth, 2006-2015



Source: Organic Trade Association

Of the US$ 606.26b in grocery store sales in the United States in 2015 (US Census Bureau, 2015), about 5% was organic (OTA, 2016). Therefore, the awareness as well as the demand for organic foods, including chickpeas, may increase simultaneously (OTA, n.d.).

Table 13 shows the income elasticity of demand. The average of 3.59 indicates that organic chickpeas, for the average US population, are not seen as a staple food but rather as an upmarket product.

Table 13: Income Elasticity - US

	2010	2011	2012	2013	2014	**Average**
Estimated consumption* (MT)	57.762,47	55.109,48	92.303,89	134.660,49	107.398,28	**89.446,92**
Change in quantity	-	-4,81%	40,30%	31,45%	-25,38%	**10,39%**
GDP per capita, US$	48.374,00	49.782,00	51.433,00	52.660,00	54.398,00	**51.329,40**
Change in income	-	2,83%	3,21%	2,33%	3,19%	**2,89%**
Income elasticity of demand	-	-1,70	12,55	13,50	-7,95	**3,59**

Source: Worldbank, UN Comtrade Database, census.gov

The fall in demand elasticity in the year 2014 can be explained by that year's poor harvest (AgMRC, 2016).

Comparison and outlook

The US and Germany both show trends toward organic food and an increase in the vegetarian population. In addition, the global trend towards a healthier lifestyle can be identified in the US and in Germany. An increase of the market share of organic chickpeas as a part of the overall chickpea market is very likely for both countries.

4. Market access

Tariffs

Germany

The EU applies a 0% tariff on the MFNs (ITC, 2016) for chickpeas. MFN tariffs are the most restrictive that WTO members charge one another (World Integrated Trade Solution, 2010). Foodstuffs are subject to a reduced VAT rate of 7% in Germany (European Commission, 2016B).

US

Depending on their state of processing, chickpeas are found under four different HS codes in the Harmonized Tariff Schedule of the United States (2016):

Table 14: US Rates of Duty

HS Code	Article Description	General	Special*	Other
0708.90.05	Leguminous vegetables, shelled or unshelled, fresh or chilled: Other leguminous vegetables: Chickpeas (garbanzos)	1¢/kg	Free	4.4¢/kg
0710.29.05	Vegetables (uncooked or cooked by steaming or boiling in water), frozen (con.): Leguminous vegetables, shelled or unshelled (con.): Other: Chickpeas (garbanzos)	1¢/kg	Free	4.4¢/kg
0713.20.10	Dried leguminous vegetables, shelled, whether or not skinned or split: Chickpeas (garbanzos): Seeds of a kind used for sowing	1.5¢/kg	Free	13.2¢/kg
2005.99.85	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen, other than products of heading 2006 (con.): Other vegetables and mixtures of vegetables (con.): Chickpeas (garbanzos)	0.8¢/kg on entire contents of container	Free	4.4¢/kg on entire contents of container
*See Annex 1 for a list of special trade agreements				
Source: Harmonized Tariff Schedule of the United States (2016) Supplement 1, Update 1				

Currently, North Korea and Cuba are charged the rate under “Other”.

Standards and regulations

Germany

Products labeled as "organic" must follow European Council Regulation (EC) No. 834/2007, summarized in Annex 2, which contains the basic objectives and general principles for organic farming and illustrates the rules on production (European Commission, 2016B).

Codex Alimentarius has published international standards for certain pulses, summarized in Annex 3. Codex includes quality factors, contaminant standards, hygiene, packaging, and labelling (Codex Alimentarius, 2016).

US

Although Codex Alimentarius also applies in the US, the USDA has more specific standards for chickpeas (table 15).

Table 15: USDA Standards for Chickpeas

Grade	Moisture	Total Defects[1]	Total Damaged[2]	Foreign Material[3]		Contrasting Classes[5]	Classes that Blend[6]
				Total (incl. stones)	Stones[4]		
Top Tier	18.0%	2.0%	2.0%	0.5%	0.2%	0.5%	5.0%
Second Tier	18.0%	4.0%	4.0%	1.0%	0.4%	1.0%	10.0%
Third Tier	18.0%	6.0%	6.0%	1.5%	0.6%	2.0%	15.0%

[1]Splits, damaged beans, contrasting classes, and foreign material

[2]Beans and pieces of beans that are damaged by frost, weather, disease, weevils or other insects, or other causes.

[3]Stones, dirt, weed seeds, cereal grains, lentils, peas, and all matter other than beans.

[4]Concreted earthy or mineral matter, and other substances of similar hardness that do not disintegrate readily in water.

[5]Beans of other classes that are of a different color, size, or shape from the beans of the class designated.

[6]Beans from other classes that are free from defects and are similar in color, size, and shape to the beans of the class designated

Source: USDA United States Standards for Beans, 2008

In order to be listed as "organic" in the US, food must comply with the applicable provisions of The Code of Federal Regulations, shown in Annex 4, which describe the production and handling requirements for organic products (GPO, 2016).

Non-tariff barriers

Germany

Council Regulation (EC) No. 852/2004, summarized in Annex 5, defines a set of food safety objectives that firms working with food must meet, including sanitary and phytosanitary, technical, and environmental requirements. Additionally, there may be entry barriers due to competition among other organic chickpea importers to Germany (European Commission, 2016B).

US

The Food Safety Modernization Act, shown in Annex 6, describes import safety mandates including inspection and verification standards as well as additional FDA approval requirements. The Container Security Initiative requires X-rays of all container exports (FDF, n.d.). Additionally, there may be entry barriers due to competition among domestic and foreign organic chickpea producers.

Comparison and outlook

It is unclear how market access in the US will change in the future, as new regulations may be put in place by new government administrations every four or eight years. In Germany, market access is regulated by the EU. Prospective market access for both countries remains unchanged due to no new pending regulations.

5. Prices

Prices at producer level

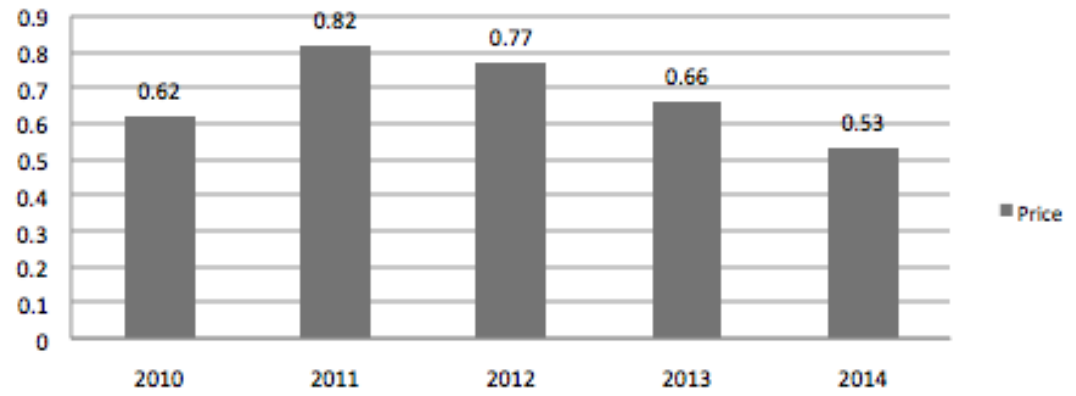
Germany

There is no chickpea production in Germany.

US

Due to additional production costs and higher perceived benefits associated with organic chickpeas, they are usually priced by a mark-up on regular, non-organic chickpeas. Figure 3 shows how domestic producer prices for regular chickpeas in the US have been varying in the last few years.

Figure 3: US Producer Prices (US$/kg)

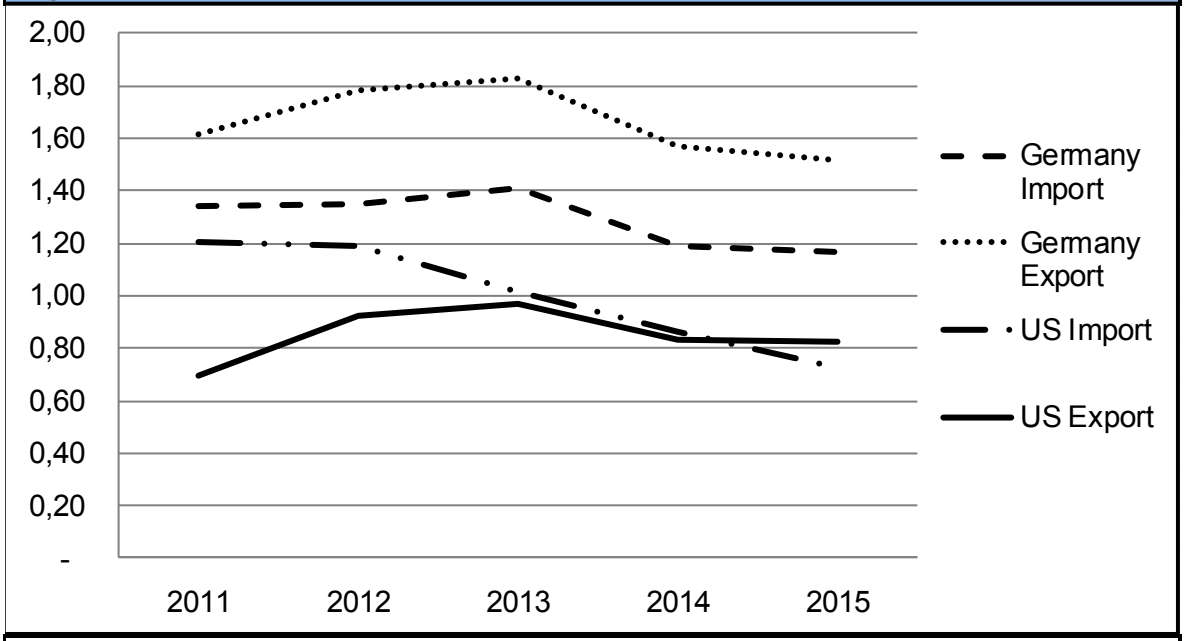


Source: FAOSTAT

Prices at import/export level

As of 2015, world export prices per kilogram have gradually decreased 16 cents from 2011 (US$ 0.81 to US$ 0.65), while import prices have also decreased (US$ 0.84 to US$ 0.73); this phenomenon could be attributed to the increase in the volumes traded in the past years, which has almost doubled from 2011 to 2015. Figure 4 shows the import and export prices of chickpeas in Germany and in the US in the last five years. In Germany, both import and export prices fluctuate with a tendency to decrease in the long-term. In the past, there has been a constant ratio by which import prices exceed export prices. This is due to the quality of the chickpeas produced in the US, since the high quality products as well as the organic versions of the products are consumed domestically.

Figure 4: Prices at Import/Export Level (US$)



Source: UN Comtrade

Prices at wholesale level

Based on online observation from Metro and Sam's Club, the wholesale price of organic chickpeas varies depending on the type, packaging, branding, and the country of origin. The average wholesale price of organic chickpeas in Germany is € 1.72/kg. In the US, the average price is US$ 6.48 for a 15.5oz (0.44kg) package, equal to US$ 14.73/kg. In the US, prices rose in recent years due to an increase of interest in a healthier lifestyle. German market prices, however, stabilized.

Prices at retail level

Germany

Based on on-site and online observation from outlets including REWE, dm, Lidl, Alnatura, Edeka, and Aldi, the average price difference between regular and organic chickpeas is about € 1.40 per 500g.

The price range for 500 grams organic chickpeas varies depending on the origin and brand of chickpeas, but is typically between € 1.95 and € 5.80.

US

Based on on-site and online observation from outlets including Walmart, Wholefoods and Trader Joe's, the retail price of organic chickpeas ranges from US$ 3.55 to

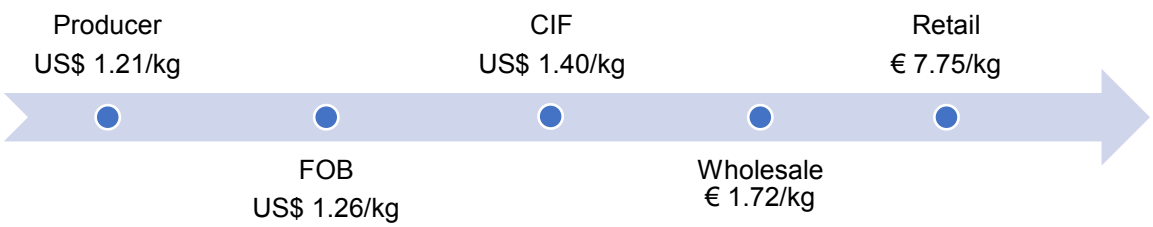
US$ 30.97, and the retail price for non-organic chickpeas ranges from US$ 1.25 to US$ 15.40 for a 16oz (454g) package. Prices also tend to shift greatly depending on country of origin, branding, prestige, retailer, location and type.

Value chain

The value chain process begins with the producing farms, which tend to be located in countries where farming is less industrialized (Ceres, 2013).

Figure 5 shows an example of the value adding steps for organic chickpeas flowing to Germany from Turkey in 2015. The producer, wholesale, and retail price are based on the average prices of Chapters 2 and 5. Turkey's export price to Germany (FOB) in 2015 is US$ 1.26/kg and Germany's import price from Turkey (CIF) in 2015 is US$ 1.40/kg (UN Comtrade, 2016).

Figure 5: Value Chain from Turkey to Germany in 2015



Source: Calculation based on Chapters 2 & 5; UN Comtrade

The largest margin through the value chain before wholesale is at import-export level in which there is an increase of 11% from its export price. However, the largest mark-up over the whole value chain occurs between wholesale and retail stages, suggesting profit opportunities for direct sales.

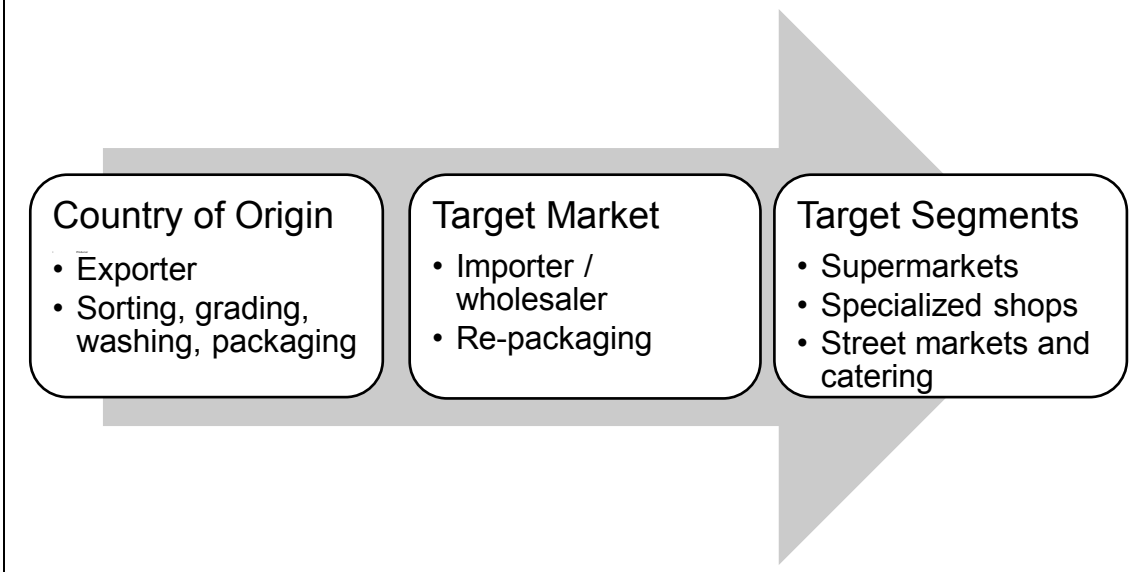
Comparison and outlook

In both Germany and the US, the importing prices of chickpeas have been decreasing in the last few years; however the prices for wholesale and retail level have remained stable. The researched information indicates that Germany is a more lucrative market to export chickpeas, as the import price is higher than that of the US. Overall, market prospects based on price in both countries are less attractive for exporters as export prices have been declining in recent years.

6. Distribution channels

Chickpeas are harvested from organic farms using combines (LfL, 2014). Moisture content is pivotal for retaining the quality and maximizing marketability (Alberta Pulse Growers, 2016). Chickpeas are stored at 10–12% seed moisture to prevent disease and insect problems. Processing is done with the goal to minimize the loss of nutritional value, and may include cleaning, drying, sorting and fractionating (USADPLA, 2010). Figure 6 shows the distribution chain. From the country of origin, chickpeas are shipped from the exporter to the importer and/or wholesalers. The most popular form of shipping in the US and Germany is by rail and/or truck. After re-packaging, the chickpeas are sold through various channels that may include supermarkets, specialized shops, street markets, or catering businesses (CBI Ministry of Affairs, 2015). Chickpeas can be stored safely for up to four years.

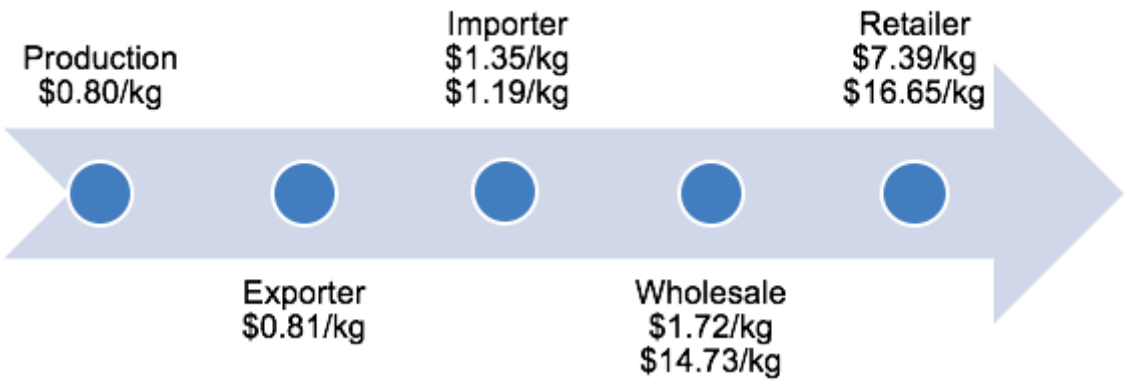
Figure 6: Distribution Chain



Source: CBI Ministry of Affairs, 2016

Figure 7 shows the combined value and supply chain for chickpeas, and highlights the value-adding steps during the distribution process. Production and exporter prices refer to average prices of the top 10 market actors in 2012. The importer and retailer prices contain German prices first and US prices second, retrieved from their top 10 suppliers in 2012 (Comtrade, 2016). The wholesale and retail prices are average prices based on online and on-site observation. Prices are likely to increase from exporter to importer, and then from importer to wholesaler due to transportation costs and margin. Prices likely increase from wholesale to retail due to branding and positioning.

Figure 7: Value/Supply Chain



Source: FAO & Comtrade (Chapters 2 & 5); Exchange Rates from 11-December 2016

Organic food sales in Germany are evenly distributed between traditional food retailers and specialist organic food stores. However, in contrast to the conventional food retail market, the organic food retail scene is neither consolidated, concentrated, nor saturated. There are over 2,400 organic food retail shops in Germany (Rehder, 2016) and dozens of organic wholesalers (Organic Market, 2016). Supermarkets, discounters, and specialized vegetable shops account for 90% of fresh vegetable and legume sales.

In the US, organic food is mainly sold in natural food stores, conventional grocery stores, and direct to consumer markets. Organic products are available in nearly 20,000 natural food stores and in three out of four conventional grocery stores in the US.

Comparison and outlook

In the future, there may be an increasing role of service providers within supermarkets as they organize integrated supply chains. This may lead to a small base of preferred suppliers or service providers. Therefore, responsiveness, product quality, and promotional planning should be optimized. Larger importing wholesalers will also act as service providers by adding extra services such as logistics (IPD, 2015). Moreover, an increasing role of organic food stores can be expected, as the market is not saturated yet and there is a growing demand in organic and fresh food (Euromonitor, 2015).

7. Commercial practices

Germany

Customers typically place their orders via email or fax. The supplier and the buyer negotiate, agree on a contract that specifies the volume and quality of the chickpeas, delivery times, and payment terms, and finally the goods will be delivered. According to industry participants, the customer normally pays within a few days after the goods are received. Many times, orders are filled in accordance with a previous procedure, including for example samplings and product quality controls, that has led to a business relationship.

Chickpeas are most commonly transported via truck at temperatures close to 0°C to guarantee a good quality. The European Commission requires the duration and the distance of transportation to be as short as possible to guarantee a low impact on the environment (European Commission, 2016C).

US

The US Pea & Lentil Trade Association is involved in setting standards for organic chickpea trade in the US. The organization has specific trade rules that most actors in the chickpea industry follow as members. These rules contain information on the most important aspects for selling and buying chickpeas (USPLTA, 2008).

Organic chickpea orders are most commonly entered in written form by fax or email, and are either sent directly to the supplier or to a broker. It is common practice to put in place a contract between buyer and seller that covers a specific time frame, volumes and prices. All transactions are confirmed and signed by all parties. The order is paid in US dollars net cash, within a 10-day timeframe starting with the invoice date (USPLTA, 2008).

It is common for chickpeas to be sold following a sample. The chickpeas that fill an order must be in the same or better condition as the sampled products. The maximum shipment time is ten days after the contract is agreed upon. A common way of shipping chickpeas is by truck (USPLTA, 2008).

Comparison and outlook

Commercial practices, both in the US and in Germany have developed over several years. Whereas in the US, the USPLTA sets standards, such an organization does not exist in the Germany, so standards are developed by both parties. Since these practices are firmly established in the daily business of all trading partners, they are

unlikely to change significantly in the future. Nevertheless, digitalization will continue to play an important role in daily businesses of all industries (DIHK 2014), respectively, trading organic products will face such a shift as well.

8. Packaging and labeling

Packaging

Germany

All materials intended to come into contact with foodstuffs must be manufactured so that they do not transfer their constituents to food in quantities that could endanger human health, change the composition of food in any unacceptable way, or deteriorate the taste and odor (European Commission, 2014). Therefore, chickpeas are shipped in 25kg or 50kg polypropylene or jute sacks stacked over pallets inside containers to avoid humidity, all these measure are in accordance to the European Commission on Agriculture as well as the Federal Ministry of Food and Agriculture of Germany.

US

In the US, overseas shipments of chickpeas are typically packaged in large 100lb polypropylene or jute sacks that are stored in containers. Organic chickpeas need to be labeled as such to prevent any mixture or exchange with non-organic products. Information relating to collection times and time of receipt also needs to be identified. Labeling, packaging, as well as nutrient and health claims are regulated by the FDA.

Labeling

Germany

Information on labels must be easy to understand, easily visible, clearly legible, indelible, and in German (European Commission, 2016A). Included in the label should be:

- Name of the food
- List of ingredients
- Net quantity
- Minimum durability date
- Storage conditions or conditions of use
- Country of origin
- Instructions for use
- Lot marking
- Nutrition declaration

- Energy values
- Amounts of fat, saturates, carbohydrates, sugars, protein, and salt.

As of 2001, organic products may be labeled with the national Bio-Siegel (eco label, left) of Germany, or the organic seal of the EU (right) as in Figure 8.

Figure 8: Organic Seals – Germany (left) vs. EU (right)

Sources: European Commission, 2016A (right) & Oekolandbau, 2016 (left)

US

The single national label for organic goods, the USDA Organic Seal, is shown in Figure 9.

Figure 9: USDA Organic Seal

Source: USDA, 2016

Organic farmers and food processors must follow a defined set of standards to produce organic food. In order to be labeled as organic, products need to be certified organic by an accredited agent, and the certification needs to be renewed each year (USDA, 2012).

Labels for organic products must include (USDA, 2014):

- Name and address of the certifying agency
- Name and address of the producer
- Nutritional information
- USDA Organic Seal
- A list of each organic ingredient

Following are organic labels that may be used, followed by their parameters of use (USDA, 2016):

1. **100% Organic**: Must contain 100% certified organic ingredients.
2. **Organic**: Must contain at least 95% organic ingredients, although may include a 100% organic claim.
3. **Made with Organic**: Must contain 70-95% of organic ingredients. May use the phrase “Made with Organic,” but must not include the seal.
4. **Specific Organic Ingredients**: Contains below 70% of certified organic content, and must not include the seal.

Comparison and outlook

Compared to the US, Germany requires more label information for organic products. As organic food becomes increasingly popular in both the US and Germany, and as consumers become more aware of the substances they consume, it is likely that the packaging and labeling requirements will become more stringent in the US to more closely follow the requirements in Germany. Germany’s packaging and labeling requirements are unlikely to change.

9. Sales promotion

Trade fairs and exhibitions

Both the US and Germany host several trade fairs that are interesting to suppliers and buyers of organic chickpeas. All trade fairs listed cover either vegetarian or organic foods.

Germany

Messe Berlin GmbH
Berlin ExpoCenter City und City Cube
Messedamm 22
14055 Berlin, Germany
+49(0)30 3038 0
fruitlogistica@messe-berlin.de
About 70,000 visitors
About 2,800 exhibitors

BioFach
NürnbergMesse GmbH
Messezentrum
90471 Nürnberg, Germany
+49(0) 911 8606 8646
About 48,000 visitors
About 2,300 exhibitors

Anuga
KoelnMesse GmbH, BVLH
Koeln Messe GmbH
Messeplatz 1
50679 Köln, Germany
+49(0) 221 821 2288
c.hackmann@koelnmesse.de
About 158,000 visitors
About 7,000 exhibitors

VeggieWorld
Wellfairs GmbH
Messecenter Rhein-Main
Robert-Bosch-Straße 5-7
65719 Wallau, Germany
+49(0) 2131 66399 18
schellkes@wellfairs.de
About 18,000 visitors
About 100 exhibitors

US

BioFach America
New Hope Network & Nurnberg Messe GmbH
Baltimore Convention Center
One West Pratt Street
Baltimore, Maryland 21201
+1 303 390 1779
tradeshows@newhope.com
About 26,000 visitors
About 160 exhibitors

Process Expo
Food Processing Suppliers Association
McCormick Place
2301 South King Drive
Chicago, Illinois 60616
+1 703 761 2600
info@fpsa.org
About 19,000 visitors
About 900 exhibitors

Natural Products Expo West
New Hope Network
Anaheim Convention Center
800 West Katella Avenue
Anaheim, California 92802
+1 303 390 1776
tradeshows@newhope.com
About 77,000 visitors
About 2,400 exhibitors

BioFach is of special importance, as the fair specifically cooperates with the International Year of Pulses (bioPress, 2016).

Trade magazines

Numerous trade magazines dealing with organic foods or pulses can be found in the US and Germany.

Germany

BioHandel-online
Bio Verlag GmbH
Magnolienweg 23
63741 Aschaffenburg, Germany
+49(0) 6021 4489 226
info@biohandel-online.de
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Organic Standard
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The *Organic Report* is especially important, as it is the official magazine of the Organic Trade Association.

Comparison and outlook

Almost every trade fair in Germany and the US stated an increasing number of visitors. In addition, the interest in trade fairs and exhibitions and trade magazines for organic chickpeas can be further expected to rise in the future in both the US and in Germany. Next to the rather traditional trade fairs and magazines, social media platforms such as LinkedIn and corporate online presences are already and will increasingly be used to share information and to network with potential partners.

10. Market prospects

Germany

Consumers in Germany are becoming increasingly interested in healthier food options, and the vegetarian market as well as the organic market in Germany is also growing, both of which lead to a greater interest in organic chickpeas. Further, as the UN declared 2016 the International Year of Pulses, even more attention should be given to organic chickpeas.

As there is currently no production in Germany, the country shall remain a very attractive place for exporters. Additionally, market access is not expected to change.

German import prices of chickpeas have been decreasing in recent years, a trend that is likely to continue. The researched information indicates that Germany is a more lucrative market to export chickpeas, as the import price is expected to continue to be higher than that of the US.

Like the US, the role of suppliers and service providers may become increasingly important in the future of organic chickpea distribution in Germany. The organic market in Germany is much more diversified than it is in the US. Distribution, therefore speaks for a more attractive market in Germany.

Commercial practices in Germany are not very likely to change within the next several years since they have been established in the past. In addition, the requirements for packaging and labeling are already quite stringent so that they neither are likely to change.

Due to the increasing interest in organic products, it is likely that visitor numbers at trade fairs will continue to increase. As such, subscriptions to trade magazines are also likely to increase. These increasing trends will continue to lead to heavy promotion of organic chickpeas and are likely to result in increasing sales.

US

The Hispanic, vegan, and vegetarian markets as well as the market for those interested in healthier food choices are expected to grow. With increasing popularity, the US is likely to start importing and/or producing and exporting more organic chickpeas. Market access is not expected to change.

Prices of chickpeas have been decreasing in recent years, a trend expected to continue. Service providers and larger importing wholesalers are likely to play an increasingly important role within the distribution of organic chickpeas in the US. As

in Germany, these providers have started to organize integrated supply chains and have begun taking responsibility for extra services such as logistics. This trend is expected to continue.

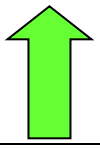
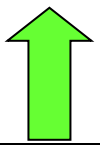
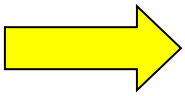
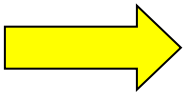
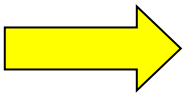
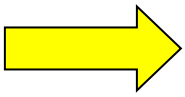
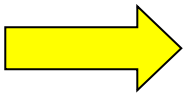
The US Dry Pea & Lentil Trade Association is involved in setting standards for commercial practices for organic chickpeas in the US. It is not likely that these standards will be changed anytime soon.

As organic food becomes increasingly popular in the US, and as consumers become more aware of the substances they consume, it is likely that the packaging and labeling requirements will become more stringent in the US, becoming more similar to those in Germany.

In recent years, industry leaders in the US have been developing new smaller trade fairs. Almost every trade fair in the US stated an increasing number of visitors. The number of visitors to fairs and prescribers to magazines should continue to increase in the future, as consumer interest in vegetarian and organic products is also expected to continue to increase.

Comparison and outlook

All in all, both countries offer a high potential for exporters to enter the market and realize sales although prices are decreasing. The similar trends of vegetarian diets and healthy lifestyles favor the consumers' interest in organic chickpeas and create an increasing demand for it. Moreover, both countries have already established market requirements such as import restrictions and packaging rules. Although these are quite stringent in both the US and in Germany, the exporter can easily gather information on what the product requirements are to avoid import problems.

Figure 10: Market Prospects Synopsis				
	Market Prospect Summary US		**Market Prospect Summary Germany**	
2		Increasingly attractive due to growing production, trade and consumption.		Increasingly attractive due to growing imports and consumption.
3		Increasingly attractive due to nutritional awareness, vegetarian and organic trend.		Increasingly attractive due to nutritional awareness, vegetarian and organic trend.
4		Unchanged due to unknown changes with import restrictions.		Unchanged due to no pending import restrictions.
5		Less attractive for exporters as export prices have been declining in recent years.		Less attractive for exporters as export prices have been declining in recent years.
6		Increasingly attractive due to an increasing interest in organic, vegetarian, and healthy food, and the markets for these foods are not yet saturated.		Increasingly attractive due to an increasing interest in organic, vegetarian, and healthy food, and the markets for these foods are not yet saturated.
7		Unchanged due to accepted commercial practices that are not expected to change.		Unchanged due to accepted commercial practices that are not expected to change.
8		Less attractive due to packaging and labeling requires being less stringent, and likely to become more stringent.		Unchanged due to packaging and labeling requirements already being quite stringent and not expected to change.
9		Increasingly attractive due to increasing participation in annual exhibitions and conferences, and increasing readership in trade magazines.		Increasingly attractive due to increasing participation in annual exhibitions and conferences, and increasing readership in trade magazines.

Annex

Annex 1: US Special Trade Agreements

A = Generalized System of Preference
AU = United States-Australia Free Trade Agreement
BH = United States-Bahrain Free Trade Agreement Implementation Act
CA = North American Free Trade Agreement: Goods of Canada
CL = United States-Chile Free Trade Agreement
CO = United States-Columbia Trade Promotion Agreement Implementation Act
E = Caribbean Basin Economic Recovery Act
IL = United States-Israel Free Trade Area
JO = United States-Jordan Free Trade Area Implementation Act
KR = United States-Korea Free Trade Agreement Implementation Act
MA = United States-Morocco Free Trade Agreement Implementation Act
MX = North American Free Trade Agreement: Goods of Mexico
OM = United States-Oman Free Trade Agreement Implementation Act
P = Dominican Republic-Central America-United States Free Trade Agreement Implementation Act
PA = United States-Panama Trade Promotion Agreement Implementation Act
PE = United States-Peru Trade Promotion Agreement Implementation Act
SG = United States-Singapore Free Trade Agreement

Source: Harmonized Tariff Schedule of the United States (2016)

Annex 2: Summary of Council Regulation (EC) No 834/2007 – Organic Production

WHAT DOES THE REGULATION DO?

It lays down a legal framework for organic products.
In harmonizing the rules on the production, labelling and control of organic products, it seeks to ensure that there is

- Fair competition between producers, and
- Greater confidence in these products among consumers

KEY POINTS

Scope

The framework governs:

- Agricultural products (including aquaculture products), either processed or unprocessed and intended for human consumption;
- Animal feed;
- Vegetative propagating material (e.g., roots and grafts) and seed used for crops;
- Yeasts used as food or feed

Objectives and principles

The **objectives** focus on sustainable agriculture and production quality, which must meet consumers' needs. The **general principles** concern, for example, specific production methods, the use of natural resources and strict restrictions on synthetic chemical inputs. It also lays down **specific principles** concerning farming, the processing of organic food and organic animal feed.

Production rules

According to the general rules for organic production, genetically modified organisms (GMOs) are prohibited in all their forms. Rules concerning the labelling of food allow operators to ensure compliance with this prohibition. Treatment by ionizing radiation is also prohibited.

Those wishing to operate both types of agricultural production (organic and non-organic) must ensure that animals and land for these 2 activities are **separated**.

Organic plant production must comply with certain rules concerning:

- Ground treatment, which must preserve life and the natural fertility of the ground;
- The prevention of damage, which must be based on natural methods but which can make use of a limited number of products authorized by the European Commission (Article 16 of the Regulation);
- Seek and plant propagation material, which must be produced using organic methods;
- Cleaning productions, for which authorization must be requested from the Commission.

Wild plants collected in some areas are also classified as organic products if they comply with certain conditions relating to their harvest and provenance (e.g. the place where they are gathered has not been treated by products that are not authorized for at least 3 years). Seaweed may also be considered as an organic product as long as its area of production and harvest comply with certain conditions.

Organic livestock production must comply with certain rules concerning:

- The animals' origin – they must have been born and reared in organic holdings;
- Livestock management and care practices, which, among other things, relate to certain features of animal housing;
- Animal breeding methods, generally natural;
- Animal feed, which must be organic;
- The prevention of disease;
- Cleaning and disinfection, involving the exclusive use of products authorized by the Commission

Similar specific rules apply to aquaculture animals.

The Commission authorizes the use of a **limited number of products and substances** in organic farming. These products may be for plant care, animal feed and the cleaning of buildings used for livestock and plant production. The Commission may also set certain limits and conditions for the application of these products.

Holdings which are entering into a new organic farming activity must comply with a **conversion period** – a transition phase during which organic practices must be respected. The Regulation lays down rules governing this conversion period. Organic processed feed must contain **organic raw materials** and may not be processed using chemical solvents. Processed food must contain mainly ingredients of agricultural origin. Other ingredients are permitted if authorization has been

requested from the Commission. Organic yeast must be produced from organic substrates and other authorized ingredients.

The Commission may make exceptions to provisions concerning objectives, production rules and labelling. These exceptions must be limited in time and apply to certain particular cases.

Source: European Commission. (2016, September). *Production and Labelling of Organic Products*. Retrieved from Trade Export Helpdesk on December 5, 2016

Annex 3: Codex Standard 171-1989: Standards for Certain Pulses

3.	**ESSENTIAL COMPOSITION AND QUALITY FACTORS**
3.1	**Quality factors – general**
3.1.1	Pulses shall be safe and suitable for human consumption.
3.1.2	Pulses shall be free from abnormal flavor, odours, and living insects.
3.1.3	Pulses shall be free from filth (impurities of animal origin, including dead insects) in amounts which may represent a hazard to human health.
3.2	**Quality factors – specific**
3.2.1	*Moisture content*
3.2.1.1	Two maximum moisture levels are provided to meet different climatic conditions and marketing practices. Lower values in the first column are suggested for countries with tropical climates or when long-term (more than one crop year) storage is a normal commercial practice. The values in the second column are suggested for more moderate climates or when other short-term storage is the normal commercial practice. Chickpeas 14% 16% Lower moisture limits should be required for certain destinations in relation to the climate, duration of transport, and storage.
3.2.1.2	In the case of pulses sold without their seed coat, the maximum moisture content shall be 2 per cent (absolute) lower in each case.
3.2.2	Extraneous matter is mineral or organic matter (dust, twigs, seedcoats, seeds of other species, dead insects, fragments, or remains of insects, other impurities of animal origin). Pulses shall have not more than 1% extraneous matter of which not more than 0.25% shall be mineral matter and not more than 0.10% shall be dead insects, fragments or remains of insects, and/or other impurities of animal origin.
3.2.2.1	Toxic or noxious seeds The products covered by the provisions of this standard shall be free from the following toxic or noxious seeds in amounts which may represent a hazard to human health. - Crotolaria (Crotalaria spp.), Corn cockle (Agrostemma githago L.), Castor bean (Ricinus communis L.), Jimson weed (Datura spp.), and other seeds that are commonly recognized as harmful to health.

4.	**CONTAMINANTS**
4.1	**Heavy metals** Pulses shall be free from heavy metals in amounts which may represent a hazard to health.
4.2	**Pesticide residues** Pulses shall comply with those maximum residue limits established by the Coxex Alimentarius Commission for this commodity

4.3 Mycotoxins

Pulses shall comply with those maximum mycotoxin limits established by the Codex Alimentarius Commission for this commodity

5. HYGIENE

5.1 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969), and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to these products.

5.2 To the extent possible in good manufacturing practice, the products shall be free from objectionable matter.

5.3 When tested by appropriate methods of sampling and examination, the products:

- shall be free from micro-organisms in amounts which may represent a hazard to health;
- shall be free from parasites which may represent a hazard to health; and
- shall not contain any substance originating from micro-organisms in amounts which may represent a hazard to health.

6. PACKAGING

6.1 Pulses shall be packaged in containers which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

6.2 The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They should not impart any toxic substance or undesirable odour or flavour to the product.

6.3 When the product is packaged in sacks, these must be clean, sturdy and strongly sewn or sealed.

7. LABELLING

In addition to the requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985), the following specific provisions apply:

7.1 Name of the product

The name of the product to be shown on the label shall be the commercial type of the pulse.

7.2 Labelling of non-retail containers

Information for non-retail containers shall either be given on the container or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer or packer shall appear on the container. However, lot identification and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

8. METHODS OF ANALYSIS AND SAMPLING

See relevant Codex texts on methods of analysis and sampling.

Source: Codex Alimentarius. (2016). *Standard for Certain Pulses*. Retrieved on January 7, 2017 from http://www.fao.org/fao-who-codexalimentarius/standards/list-of-standards/en/

Annex 4: GPO Code of Federal Regulations – Subpart C—Organic Production and Handling Requirements

§205.200 General.

The producer or handler of a production or handling operation intending to sell, label, or represent agricultural products as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s))” must comply with the applicable provisions of this subpart. Production practices implemented in accordance with this subpart must maintain or improve the natural resources of the operation, including soil and water quality.

§205.201 Organic production and handling system plan.

a) The producer or handler of a production or handling operation, except as exempt or excluded under §205.101, intending to sell, label, or represent agricultural products as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s))” must develop an organic production or handling system plan that is agreed to by the producer or handler and an accredited certifying agent. An organic system plan must meet the requirements set forth in this section for organic production or handling. An organic production or handling system plan must include:
    1. A description of practices and procedures to be performed and maintained, including the frequency with which they will be performed;
    2. A list of each substance to be used as a production or handling input, indicating its composition, source, location(s) where it will be used, and documentation of commercial availability, as applicable;
    3. A description of the monitoring practices and procedures to be performed and maintained, including the frequency with which they will be performed, to verify that the plan is effectively implemented;
    4. A description of the recordkeeping system implemented to comply with the requirements established in §205.103;
    5. A description of the management practices and physical barriers established to prevent commingling of organic and nonorganic products on a split operation and to prevent contact of organic production and handling operations and products with prohibited substances; and
    6. Additional information deemed necessary by the certifying agent to evaluate compliance with the regulations.
b) A producer may substitute a plan prepared to meet the requirements of another Federal, State, or local government regulatory program for the organic system plan: *Provided,* That, the submitted plan meets all the requirements of this subpart.

§205.202 Land requirements.

Any field or farm parcel from which harvested crops are intended to be sold, labeled, or represented as “organic,” must:

a) Have been managed in accordance with the provisions of §§205.203 through 205.206;
b) Have had no prohibited substances, as listed in §205.105, applied to it for a period of 3 years immediately preceding harvest of the crop; and
c) Have distinct, defined boundaries and buffer zones such as runoff diversions to prevent the unintended application of a prohibited substance to the crop or contact with a prohibited substance applied to adjoining land that is not under organic management.

§205.203 Soil fertility and crop nutrient management practice standard.

a) The producer must select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of soil and minimize soil erosion.
b) The producer must manage crop nutrients and soil fertility through rotations, cover crops, and the application of plant and animal materials.
c) The producer must manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances. Animal and plant materials include:
    1. Raw animal manure, which must be composted unless it is:
        i. Applied to land used for a crop not intended for human consumption;
        ii. Incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or
        iii. Incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles;
    2. Composted plant and animal materials produced through a process that:
        i. Established an initial C:N ratio of between 25:1 and 40:1; and
        ii. Maintained a temperature of between 131 °F and 170 °F for 3 days using an in-vessel or static aerated pile system; or
        iii. Maintained a temperature of between 131 °F and 170 °F for 15 days using a windrow composting system, during which period, the materials must be turned a minimum of five times.
    3. Uncomposted plant materials.
d) A producer may manage crop nutrients and soil fertility to maintain or improve soil organic matter content in a manner that does not contribute to

contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances by applying:

1. A crop nutrient or soil amendment included on the National List of synthetic substances allowed for use in organic crop production;
2. A mined substance of low solubility;
3. A mined substance of high solubility: *Provided,* That, the substance is used in compliance with the conditions established on the National List of nonsynthetic materials prohibited for crop production;
4. Ash obtained from the burning of a plant or animal material, except as prohibited in paragraph (e) of this section: *Provided,* That, the material burned has not been treated or combined with a prohibited substance or the ash is not included on the National List of nonsynthetic substances prohibited for use in organic crop production; and
5. A plant or animal material that has been chemically altered by a manufacturing process: *Provided,* That, the material is included on the National List of synthetic substances allowed for use in organic crop production established in §205.601.

e) The producer must not use:

1. Any fertilizer or composted plant and animal material that contains a synthetic substance not included on the National List of synthetic substances allowed for use in organic crop production;
2. Sewage sludge (biosolids); and
3. Burning as a means of disposal for crop residues produced on the operation: *Except,* that, burning may be used to suppress the spread of disease or to stimulate seed germination.

§205.204 Seeds and planting stock practice standard.

a) The producer must use organically grown seeds, annual seedlings, and planting stock: *Except,* That,

1. Nonorganically produced, untreated seeds and planting stock may be used to produce an organic crop when an equivalent organically produced variety is not commercially available: *Except,* That, organically produced seed must be used for the production of edible sprouts;
2. Nonorganically produced seeds and planting stock that have been treated with a substance included on the National List of synthetic substances allowed for use in organic crop production may be used to produce an organic crop when an equivalent organically produced or untreated variety is not commercially available;
3. Nonorganically produced annual seedlings may be used to produce an organic crop when a temporary variance has been granted in accordance with §205.290(a)(2);
4. Nonorganically produced planting stock to be used to produce a perennial crop may be sold, labeled, or represented as organically

produced only after the planting stock has been maintained under a system of organic management for a period of no less than 1 year; and

5. Seeds, annual seedlings, and planting stock treated with prohibited substances may be used to produce an organic crop when the application of the materials is a requirement of Federal or State phytosanitary regulations.

§205.205 Crop rotation practice standard.

The producer must implement a crop rotation including but not limited to sod, cover crops, green manure crops, and catch crops that provide the following functions that are applicable to the operation:

a) Maintain or improve soil organic matter content;
b) Provide for pest management in annual and perennial crops;
c) Manage deficient or excess plant nutrients; and
d) Provide erosion control.

§205.206 Crop pest, weed, and disease management practice standard.

a) The producer must use management practices to prevent crop pests, weeds, and diseases including but not limited to:
    1. Crop rotation and soil and crop nutrient management practices, as provided for in §§205.203 and 205.205;
    2. Sanitation measures to remove disease vectors, weed seeds, and habitat for pest organisms; and
    3. Cultural practices that enhance crop health, including selection of plant species and varieties with regard to suitability to site-specific conditions and resistance to prevalent pests, weeds, and diseases.
b) Pest problems may be controlled through mechanical or physical methods including but not limited to:
    1. Augmentation or introduction of predators or parasites of the pest species;
    2. Development of habitat for natural enemies of pests;
    3. Nonsynthetic controls such as lures, traps, and repellents.
c) Weed problems may be controlled through:
    1. Mulching with fully biodegradable materials;
    2. Mowing;
    3. Livestock grazing;
    4. Hand weeding and mechanical cultivation;
    5. Flame, heat, or electrical means; or
    6. Plastic or other synthetic mulches: *Provided,* That, they are removed from the field at the end of the growing or harvest season
d) Disease problems may be controlled through:
    1. Management practices which suppress the spread of disease organisms; or
    2. Application of nonsynthetic biological, botanical, or mineral inputs

e) When the practices provided for in paragraphs (a) through (d) of this section are insufficient to prevent or control crop pests, weeds, and diseases, a biological or botanical substance or a substance included on the National List of synthetic substances allowed for use in organic crop production may be applied to prevent, suppress, or control pests, weeds, or diseases: *Provided,* That, the conditions for using the substance are documented in the organic system plan.
f) The producer must not use lumber treated with arsenate or other prohibited materials for new installations or replacement purposes in contact with soil or livestock.

Various Sections Referenced in Subpart C:

§205.101 Exemptions and exclusions from certification.

a) *Exemptions.*
    1. A production or handling operation that sells agricultural products as "organic" but whose gross agricultural income from organic sales totals $5,000 or less annually is exempt
    2. A handling operation that is a retail food establishment or portion of a retail food establishment that handles organically produced agricultural products but does not process them is exempt from the requirements in this part.
    3. A handling operation or portion of a handling operation that only handles agricultural products that contain less than 70 percent organic ingredients by total weight of the finished product (excluding water and salt) is exempt from the requirements in this part, except:
        i. The provisions for prevention of contact of organic products with prohibited substances set forth in §205.272 with respect to any organically produced ingredients used in an agricultural product;
        ii. The labeling provisions of §§205.305 and 205.310; and
        iii. The recordkeeping provisions in paragraph (c) of this section.
    4. A handling operation or portion of a handling operation that only identifies organic ingredients on the information panel is exempt from the requirements in this part, except:
        i. The provisions for prevention of contact of organic products with prohibited substances set forth in §205.272 with respect to any organically produced ingredients used in an agricultural product;
        ii. The labeling provisions of §§205.305 and 205.310; and
        iii. The recordkeeping provisions in paragraph (c) of this section.
b) *Exclusions.*
    1. A handling operation or portion of a handling operation is excluded from the requirements of this part, except for the requirements for the prevention of commingling and contact with prohibited substances as set forth in §205.272 with respect to any organically produced products, if such operation or portion of the operation only sells organic

agricultural products labeled as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s))” that:

i. Are packaged or otherwise enclosed in a container prior to being received or acquired by the operation; and

ii. Remain in the same package or container and are not otherwise processed while in the control of the handling operation.

2. A handling operation that is a retail food establishment or portion of a retail food establishment that processes, on the premises of the retail food establishment, raw and ready-to-eat food from agricultural products that were previously labeled as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s))” is excluded from the requirements in this part, except:

i. The requirements for the prevention of contact with prohibited substances as set forth in §205.272; and

ii. The labeling provisions of §205.310.

c) *Records to be maintained by exempt operations.*

1. Any handling operation exempt from certification pursuant to paragraph (a)(3) or (a)(4) of this section must maintain records sufficient to:

i. Prove that ingredients identified as organic were organically produced and handled; and

ii. Verify quantities produced from such ingredients.

2. Records must be maintained for no less than 3 years beyond their creation and the operations must allow representatives of the Secretary and the applicable State organic programs' governing State official access to these records for inspection and copying during normal business hours to determine compliance with the applicable regulations set forth in this part.

§205.103 Recordkeeping by certified operations.

a) A certified operation must maintain records concerning the production, harvesting, and handling of agricultural products that are or that are intended to be sold, labeled, or represented as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s)).”

b) Such records must:

1. Be adapted to the particular business that the certified operation is conducting;
2. Fully disclose all activities and transactions of the certified operation in sufficient detail as to be readily understood and audited;
3. Be maintained for not less than 5 years beyond their creation; and
4. Be sufficient to demonstrate compliance with the Act and the regulations in this part.

c) The certified operation must make such records available for inspection and copying during normal business hours by authorized representatives of the Secretary, the applicable State program's governing State official, and the

certifying agent.

§205.105 Allowed and prohibited substances, methods, and ingredients in organic production and handling.

To be sold or labeled as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))," the product must be produced and handled without the use of:

a) Synthetic substances and ingredients, except as provided in §205.601 or §205.603;
b) Nonsynthetic substances prohibited in §205.602 or §205.604;
c) Nonagricultural substances used in or on processed products, except as otherwise provided in §205.605;
d) Nonorganic agricultural substances used in or on processed products, except as otherwise provided in §205.606;
e) Excluded methods, except for vaccines: *Provided,* That, the vaccines are approved in accordance with §205.600(a);
f) Ionizing radiation, as described in Food and Drug Administration regulation, 21 CFR 179.26; and
g) Sewage sludge.

§205.272 Commingling and contact with prohibited substance prevention practice standard.

a) The handler of an organic handling operation must implement measures necessary to prevent the commingling of organic and nonorganic products and protect organic products from contact with prohibited substances.
b) The following are prohibited for use in the handling of any organically produced agricultural product or ingredient labeled in accordance with subpart D of this part:
    1. Packaging materials, and storage containers, or bins that contain a synthetic fungicide, preservative, or fumigant;
    2. The use or reuse of any bag or container that has been in contact with any substance in such a manner as to compromise the organic integrity of any organically produced product or ingredient placed in those containers, unless such reusable bag or container has been thoroughly cleaned and poses no risk of contact of the organically produced product or ingredient with the substance used.

§205.300 Use of the term, "organic."

a) The term, "organic," may only be used on labels and in labeling of raw or processed agricultural products, including ingredients, that have been produced and handled in accordance with the regulations in this part. The

term, “organic,” may not be used in a product name to modify a nonorganic ingredient in the product.

b) Products for export, produced and certified to foreign national organic standards or foreign contract buyer requirements, may be labeled in accordance with the organic labeling requirements of the receiving country or contract buyer: *Provided,* That, the shipping containers and shipping documents meet the labeling requirements specified in §205.307(c).

c) Products produced in a foreign country and exported for sale in the United States must be certified pursuant to subpart E of this part and labeled pursuant to this subpart D.

d) Livestock feeds produced in accordance with the requirements of this part must be labeled in accordance with the requirements of §205.306.

§205.301 Product composition.

f) All products labeled as “100 percent organic” or “organic” and all ingredients identified as “organic” in the ingredient statement of any product must not:

1. Be produced using excluded methods, pursuant to §205.105(e);
2. Be produced using ionizing radiation, pursuant to §205.105(f);
3. Be processed using sewage sludge, pursuant to §205.105(g);
4. Be processed using processing aids not approved on the National List of Allowed and Prohibited Substances in subpart G of this part: Except, That, products labeled as “100 percent organic,” if processed, must be processed using organically produced processing aids;
5. Contain sulfites, nitrates, or nitrites added during the production or handling process, Except, that, wine containing added sulfites may be labeled “made with organic grapes”;
6. Be produced using nonorganic ingredients when organic ingredients are available; or
7. Include organic and nonorganic forms of the same ingredient.

§205.305 Multi-ingredient packaged products with less than 70 percent organically produced ingredients.

a) An agricultural product with less than 70 percent organically produced ingredients may only identify the organic content of the product by:

1. Identifying each organically produced ingredient in the ingredient statement with the word, “organic,” or with an asterisk or other reference mark which is defined below the ingredient statement to indicate the ingredient is organically produced, and
2. If the organically produced ingredients are identified in the ingredient statement, displaying the product's percentage of organic contents on the information panel.

b) Agricultural products with less than 70 percent organically produced ingredients must not display:
    1. The USDA seal; and
    2. Any certifying agent seal, logo, or other identifying mark which represents organic certification of a product or product ingredients.

§205.310 Agricultural products produced on an exempt or excluded operation.

b) An agricultural product organically produced or handled on an exempt or excluded operation must not:
    1. Display the USDA seal or any certifying agent's seal or other identifying mark which represents the exempt or excluded operation as a certified organic operation, or
    2. Be represented as a certified organic product or certified organic ingredient to any buyer.
c) An agricultural product organically produced or handled on an exempt or excluded operation may be identified as an organic product or organic ingredient in a multiingredient product produced by the exempt or excluded operation. Such product or ingredient must not be identified or represented as “organic” in a product processed by others.
d) Such product is subject to requirements specified in paragraph (a) of §205.300, and paragraphs (f)(1) through (f)(7) of §205.301.

§205.600 Evaluation criteria for allowed and prohibited substances, methods, and ingredients.

The following criteria will be utilized in the evaluation of substances or ingredients for the organic production and handling sections of the National List:

a) Synthetic and nonsynthetic substances considered for inclusion on or deletion from the National List of allowed and prohibited substances will be evaluated using the criteria specified in the Act (7 U.S.C. 6517 and 6518).

§205.601 Synthetic substances allowed for use in organic crop production.

In accordance with restrictions specified in this section, the following synthetic substances may be used in organic crop production: *Provided,* That, use of such substances do not contribute to contamination of crops, soil, or water. Substances allowed by this section, except disinfectants and sanitizers in paragraph (a) and those substances in paragraphs (c), (j), (k), and (l) of this section, may only be used when the provisions set forth in §205.206(a) through (d) prove insufficient to prevent or control the target pest.

a) As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems.
    1. Alcohols.

i. Ethanol.
ii. Isopropanol.

2. Chlorine materials—For pre-harvest use, residual chlorine levels in the water in direct crop contact or as water from cleaning irrigation systems applied to soil must not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act, except that chlorine products may be used in edible sprout production according to EPA label directions.
    i. Calcium hypochlorite.
    ii. Chlorine dioxide.
    iii. Sodium hypochlorite.
3. Copper sulfate—for use as an algicide in aquatic rice systems, is limited to one application per field during any 24-month period. Application rates are limited to those which do not increase baseline soil test values for copper over a timeframe agreed upon by the producer and accredited certifying agent.
4. Hydrogen peroxide.
5. Ozone gas—for use as an irrigation system cleaner only.
6. Peracetic acid—for use in disinfecting equipment, seed, and asexually propagated planting material. Also permitted in hydrogen peroxide formulations as allowed in §205.601(a) at concentration of no more than 6% as indicated on the pesticide product label.
7. Soap-based algicide/demossers.
8. Sodium carbonate peroxyhydrate (CAS #-15630-89-4)—Federal law restricts the use of this substance in food crop production to approved food uses identified on the product label.

b) As herbicides, weed barriers, as applicable.
    1. Herbicides, soap-based—for use in farmstead maintenance (roadways, ditches, right of ways, building perimeters) and ornamental crops.
    2. Mulches.
        i. Newspaper or other recycled paper, without glossy or colored inks.
        ii. Plastic mulch and covers (petroleum-based other than polyvinyl chloride (PVC)).
        iii. Biodegradable biobased mulch film as defined in §205.2. Must be produced without organisms or feedstock derived from excluded methods.
c) As compost feedstocks—Newspapers or other recycled paper, without glossy or colored inks.
d) As animal repellents—Soaps, ammonium—for use as a large animal repellant only, no contact with soil or edible portion of crop.
e) As insecticides (including acaricides or mite control).
    1. Ammonium carbonate—for use as bait in insect traps only, no direct contact with crop or soil.

2. Aqueous potassium silicate (CAS #-1312-76-1)—the silica, used in the manufacture of potassium silicate, must be sourced from naturally occurring sand.
3. Boric acid—structural pest control, no direct contact with organic food or crops.
4. Copper sulfate—for use as tadpole shrimp control in aquatic rice production, is limited to one application per field during any 24-month period. Application rates are limited to levels which do not increase baseline soil test values for copper over a timeframe agreed upon by the producer and accredited certifying agent.
5. Elemental sulfur.
6. Lime sulfur—including calcium polysulfide.
7. Oils, horticultural—narrow range oils as dormant, suffocating, and summer oils.
8. Soaps, insecticidal.
9. Sticky traps/barriers.
10. Sucrose octanoate esters (CAS #s—42922-74-7; 58064-47-4)—in accordance with approved labeling.

f) As insect management. Pheromones.
g) As rodenticides. Vitamin D_3.
h) As slug or snail bait. Ferric phosphate (CAS # 10045-86-0).
i) As plant disease control.
    1. Aqueous potassium silicate (CAS #-1312-76-1)—the silica, used in the manufacture of potassium silicate, must be sourced from naturally occurring sand.
    2. Coppers, fixed—copper hydroxide, copper oxide, copper oxychloride, includes products exempted from EPA tolerance, *Provided,* That, copper-based materials must be used in a manner that minimizes accumulation in the soil and shall not be used as herbicides.
    3. Copper sulfate—Substance must be used in a manner that minimizes accumulation of copper in the soil.
    4. Hydrated lime.
    5. Hydrogen peroxide.
    6. Lime sulfur.
    7. Oils, horticultural, narrow range oils as dormant, suffocating, and summer oils.
    8. Peracetic acid—for use to control fire blight bacteria. Also permitted in hydrogen peroxide formulations as allowed in §205.601(i) at concentration of no more than 6% as indicated on the pesticide product label.
    9. Potassium bicarbonate.
    10. Elemental sulfur.
j) As plant or soil amendments.

1. Aquatic plant extracts (other than hydrolyzed)—Extraction process is limited to the use of potassium hydroxide or sodium hydroxide; solvent amount used is limited to that amount necessary for extraction.
2. Elemental sulfur.
3. Humic acids—naturally occurring deposits, water and alkali extracts only.
4. Lignin sulfonate—chelating agent, dust suppressant.
5. Magnesium sulfate—allowed with a documented soil deficiency.
6. Micronutrients—not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing.
    i. Soluble boron products.
    ii. Sulfates, carbonates, oxides, or silicates of zinc, copper, iron, manganese, molybdenum, selenium, and cobalt.
7. Liquid fish products—can be pH adjusted with sulfuric, citric or phosphoric acid. The amount of acid used shall not exceed the minimum needed to lower the pH to 3.5.
8. Vitamins, B_1, C, and E.
9. Sulfurous acid (CAS # 7782-99-2) for on-farm generation of substance utilizing 99% purity elemental sulfur per paragraph (j)(2) of this section.

k) As plant growth regulators. Ethylene gas—for regulation of pineapple flowering.
l) As floating agents in postharvest handling.
    1. Lignin sulfonate.
    2. Sodium silicate—for tree fruit and fiber processing.
m) As synthetic inert ingredients as classified by the Environmental Protection Agency (EPA), for use with nonsynthetic substances or synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances.
    1. EPA List 4—Inerts of Minimal Concern.
    2. EPA List 3—Inerts of unknown toxicity—for use only in passive pheromone dispensers.
n) Seed preparations. Hydrogen chloride (CAS # 7647-01-0)—for delinting cotton seed for planting.
o) As production aids. Microcrystalline cheesewax (CAS #'s 64742-42-3, 8009-03-08, and 8002-74-2)-for use in log grown mushroom production. Must be made without either ethylene-propylene co-polymer or synthetic colors.

§205.602 Nonsynthetic substances prohibited for use in organic crop production.

The following nonsynthetic substances may not be used in organic crop production:

a) Ash from manure burning.
b) Arsenic.

c) Calcium chloride, brine process is natural and prohibited for use except as a foliar spray to treat a physiological disorder associated with calcium uptake.
d) Lead salts.
e) Potassium chloride—unless derived from a mined source and applied in a manner that minimizes chloride accumulation in the soil.
f) Sodium fluoaluminate (mined).
g) Sodium nitrate—unless use is restricted to no more than 20% of the crop's total nitrogen requirement; use in spirulina production is unrestricted until October 21, 2005.
h) Strychnine.
i) Tobacco dust (nicotine sulfate).

§205.603 Synthetic substances allowed for use in organic livestock production.

In accordance with restrictions specified in this section the following synthetic substances may be used in organic livestock production:

a) As disinfectants, sanitizer, and medical treatments as applicable.
    1. Alcohols.
        i. Ethanol-disinfectant and sanitizer only, prohibited as a feed additive.
        ii. Isopropanol-disinfectant only.
    2. Aspirin-approved for health care use to reduce inflammation.
    3. Atropine (CAS #-51-55-8)—federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations. Also, for use under 7 CFR part 205, the NOP requires:
        i. Use by or on the lawful written order of a licensed veterinarian; and
        ii. A meat withdrawal period of at least 56 days after administering to livestock intended for slaughter; and a milk discard period of at least 12 days after administering to dairy animals.
    4. Biologics—Vaccines.
    5. Butorphanol (CAS #-42408-82-2)—federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations. Also, for use under 7 CFR part 205, the NOP requires:
        i. Use by or on the lawful written order of a licensed veterinarian; and
        ii. A meat withdrawal period of at least 42 days after administering to livestock intended for slaughter; and a milk discard period of at least 8 days after administering to dairy animals.
    6. Chlorhexidine—Allowed for surgical procedures conducted by a

veterinarian. Allowed for use as a teat dip when alternative germicidal agents and/or physical barriers have lost their effectiveness.

7. Chlorine materials—disinfecting and sanitizing facilities and equipment. Residual chlorine levels in the water shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act.
    i. Calcium hypochlorite.
    ii. Chlorine dioxide.
    iii. Sodium hypochlorite.
8. Electrolytes—without antibiotics.
9. Flunixin (CAS #-38677-85-9)—in accordance with approved labeling; except that for use under 7 CFR part 205, the NOP requires a withdrawal period of at least two-times that required by the FDA.
10. Furosemide (CAS #-54-31-9)—in accordance with approved labeling; except that for use under 7 CFR part 205, the NOP requires a withdrawal period of at least two-times that required that required by the FDA.
11. Glucose.
12. Glycerin—Allowed as a livestock teat dip, must be produced through the hydrolysis of fats or oils.
13. Hydrogen peroxide.
14. Iodine.
15. Magnesium hydroxide (CAS #-1309-42-8)—federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations. Also, for use under 7 CFR part 205, the NOP requires use by or on the lawful written order of a licensed veterinarian.
16. Magnesium sulfate.
17. Oxytocin—use in postparturition therapeutic applications.
18. Parasiticides—Prohibited in slaughter stock, allowed in emergency treatment for dairy and breeder stock when organic system plan-approved preventive management does not prevent infestation. Milk or milk products from a treated animal cannot be labeled as provided for in subpart D of this part for 90 days following treatment. In breeder stock, treatment cannot occur during the last third of gestation if the progeny will be sold as organic and must not be used during the lactation period for breeding stock.
    i. Fenbendazole (CAS #43210-67-9)—only for use by or on the lawful written order of a licensed veterinarian.
    ii. Ivermectin (CAS #70288-86-7).
    iii. Moxidectin (CAS #113507-06-5)—for control of internal parasites only.
19. Peroxyacetic/peracetic acid (CAS #-79-21-0)—for sanitizing facility and processing equipment.

20. Phosphoric acid—allowed as an equipment cleaner, *Provided*, That, no direct contact with organically managed livestock or land occurs.
21. Poloxalene (CAS #-9003-11-6)—for use under 7 CFR part 205, the NOP requires that poloxalene only be used for the emergency treatment of bloat.
22. Tolazoline (CAS #-59-98-3)—federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations. Also, for use under 7 CFR part 205, the NOP requires:
    i. Use by or on the lawful written order of a licensed veterinarian;
    ii. Use only to reverse the effects of sedation and analgesia caused by Xylazine; and
    iii. A meat withdrawal period of at least 8 days after administering to livestock intended for slaughter; and a milk discard period of at least 4 days after administering to dairy animals.
23. Xylazine (CAS #-7361-61-7)—federal law restricts this drug to use by or on the lawful written or oral order of a licensed veterinarian, in full compliance with the AMDUCA and 21 CFR part 530 of the Food and Drug Administration regulations. Also, for use under 7 CFR part 205, the NOP requires:
    i. Use by or on the lawful written order of a licensed veterinarian;
    ii. The existence of an emergency; and
    iii. A meat withdrawal period of at least 8 days after administering to livestock intended for slaughter; and a milk discard period of at least 4 days after administering to dairy animals.

b) As topical treatment, external parasiticide or local anesthetic as applicable.
    1. Copper sulfate.
    2. Formic acid (CAS # 64-18-6)—for use as a pesticide solely within honeybee hives.
    3. Iodine.
    4. Lidocaine—as a local anesthetic. Use requires a withdrawal period of 90 days after administering to livestock intended for slaughter and 7 days after administering to dairy animals.
    5. Lime, hydrated—as an external pest control, not permitted to cauterize physical alterations or deodorize animal wastes.
    6. Mineral oil—for topical use and as a lubricant
    7. Procaine—as a local anesthetic, use requires a withdrawal period of 90 days after administering to livestock intended for slaughter and 7 days after administering to dairy animals
    8. Sucrose octanoate esters (CAS #s-42922-74-7; 58064-47-4)—in accordance with approved labeling.
c) As feed supplements—None.
d) As feed additives.

1. DL-Methionine, DL-Methionine-hydroxy analog, and DL-Methionine-hydroxy analog calcium (CAS #'s 59-51-8, 583-91-5, 4857-44-7, and 922-50-9)—for use only in organic poultry production at the following maximum levels of synthetic methionine per ton of feed: Laying and broiler chickens—2 pounds; turkeys and all other poultry—3 pounds.
2. Trace minerals, used for enrichment or fortification when FDA approved.
3. Vitamins, used for enrichment or fortification when FDA approved.

e) As synthetic inert ingredients as classified by the Environmental Protection Agency (EPA), for use with nonsynthetic substances or synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances.
    1. EPA List 4—Inerts of Minimal Concern.
f) Excipients, only for use in the manufacture of drugs used to treat organic livestock when the excipient is: Identified by the FDA as Generally Recognized As Safe; Approved by the FDA as a food additive; or Included in the FDA review and approval of a New Animal Drug Application or New Drug Application.

§205.604 Nonsynthetic substances prohibited for use in organic livestock production.

The following nonsynthetic substances may not be used in organic livestock production:

a) Strychnine.

§205.605 Nonagricultural (nonorganic) substances allowed as ingredients in or on processed products labeled as "organic" or "made with organic (specified ingredients or food group(s))."

The following nonagricultural substances may be used as ingredients in or on processed products labeled as "organic" or "made with organic (specified ingredients or food group(s))" only in accordance with any restrictions specified in this section.

a) *Nonsynthetics allowed:*

Acids (Alginic; Citric—produced by microbial fermentation of carbohydrate substances; and Lactic).
Agar-agar.
Animal enzymes—(Rennet—animals derived; Catalase—bovine liver; Animal lipase; Pancreatin; Pepsin; and Trypsin).
Attapulgite—as a processing aid in the handling of plant and animal oils.
Bentonite.
Calcium carbonate.
Calcium chloride.
Calcium sulfate—mined.
Carrageenan.
Dairy cultures.

Diatomaceous earth—food filtering aid only.
Enzymes—must be derived from edible, nontoxic plants, nonpathogenic fungi, or nonpathogenic bacteria.
Flavors, nonsynthetic sources only and must not be produced using synthetic solvents and carrier systems or any artificial preservative.
Gellan gum (CAS # 71010-52-1)—high-acyl form only.
Glucono delta-lactone—production by the oxidation of D-glucose with bromine water is prohibited.
Kaolin.
L-Malic acid (CAS # 97-67-6).
Magnesium sulfate, nonsynthetic sources only.
Microorganisms—any food grade bacteria, fungi, and other microorganism.
Nitrogen—oil-free grades.
Oxygen—oil-free grades.
Perlite—for use only as a filter aid in food processing.
Potassium chloride.
Potassium iodide.
Sodium bicarbonate.
Sodium carbonate.
Tartaric acid—made from grape wine.
Waxes—nonsynthetic (Carnauba wax; and Wood resin).
Yeast—When used as food or a fermentation agent in products labeled as "organic," yeast must be organic if its end use is for human consumption; nonorganic yeast may be used when organic yeast is not commercially available. Growth on petrochemical substrate and sulfite waste liquor is prohibited. For smoked yeast, nonsynthetic smoke flavoring process must be documented.

b) *Synthetics allowed:*

Acidified sodium chlorite—Secondary direct antimicrobial food treatment and indirect food contact surface sanitizing. Acidified with citric acid only.
Activated charcoal (CAS #s 7440-44-0; 64365-11-3)—only from vegetative sources; for use only as a filtering aid.
Alginates.
Ammonium bicarbonate—for use only as a leavening agent.
Ammonium carbonate—for use only as a leavening agent.
Ascorbic acid.
Calcium citrate.
Calcium hydroxide.
Calcium phosphates (monobasic, dibasic, and tribasic).
Carbon dioxide.
Cellulose—for use in regenerative casings, as an anti-caking agent (non-chlorine bleached) and filtering aid.
Chlorine materials—disinfecting and sanitizing food contact surfaces, *Except,* That, residual chlorine levels in the water shall not exceed the maximum residual

disinfectant limit under the Safe Drinking Water Act (Calcium hypochlorite; Chlorine dioxide; and Sodium hypochlorite).
Ethylene—allowed for postharvest ripening of tropical fruit and degreening of citrus.
Ferrous sulfate—for iron enrichment or fortification of foods when required by regulation or recommended (independent organization).
Glycerides (mono and di)—for use only in drum drying of food.
Glycerin—produced by hydrolysis of fats and oils.
Hydrogen peroxide.
Magnesium carbonate—for use only in agricultural products labeled "made with organic (specified ingredients or food group(s))," prohibited in agricultural products labeled "organic".
Magnesium chloride—derived from sea water.
Magnesium stearate—for use only in agricultural products labeled "made with organic (specified ingredients or food group(s))," prohibited in agricultural products labeled "organic".
Nutrient vitamins and minerals, in accordance with 21 CFR 104.20, Nutritional Quality Guidelines For Foods.
Ozone.
Peracetic acid/Peroxyacetic acid (CAS # 79-21-0)—for use in wash and/or rinse water according to FDA limitations. For use as a sanitizer on food contact surfaces.
Phosphoric acid—cleaning of food-contact surfaces and equipment only.
Potassium acid tartrate.
Potassium carbonate.
Potassium citrate.
Potassium hydroxide—prohibited for use in lye peeling of fruits and vegetables except when used for peeling peaches.
Potassium phosphate—for use only in agricultural products labeled "made with organic (specific ingredients or food group(s))," prohibited in agricultural products labeled "organic".
Silicon dioxide—Permitted as a defoamer. Allowed for other uses when organic rice hulls are not commercially available.
Sodium acid pyrophosphate (CAS # 7758-16-9)—for use only as a leavening agent.
Sodium citrate.
Sodium hydroxide—prohibited for use in lye peeling of fruits and vegetables.
Sodium phosphates—for use only in dairy foods.
Sulfur dioxide—for use only in wine labeled "made with organic grapes," Provided, That, total sulfite concentration does not exceed 100 ppm.
Tocopherols—derived from vegetable oil when rosemary extracts are not a suitable alternative.
Xanthan gum.

§205.606 Nonorganically produced agricultural products allowed as ingredients in or on processed products labeled as "organic."

Only the following nonorganically produced agricultural products may be used as

ingredients in or on processed products labeled as “organic,” only in accordance with any restrictions specified in this section, and only when the product is not commercially available in organic form.

a) Casings, from processed intestines.
b) Celery powder.
c) Chia (*Salvia hispanica L.*).
d) Colors derived from agricultural products—Must not be produced using synthetic solvents and carrier systems or any artificial preservative.
    1. Beet juice extract color (pigment CAS #7659-95-2).
    2. Beta-carotene extract color—derived from carrots or algae (pigment CAS# 7235-40-7).
    3. Black currant juice color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    4. Black/Purple carrot juice color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    5. Blueberry juice color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    6. Carrot juice color (pigment CAS #1393-63-1).
    7. Cherry juice color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    8. Chokeberry—Aronia juice color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    9. Elderberry juice color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    10. Grape juice color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    11. Grape skin extract color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    12. Paprika color (CAS #68917-78-2)—dried, and oil extracted.
    13. Pumpkin juice color (pigment CAS #127-40-2).
    14. Purple potato juice (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    15. Red cabbage extract color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    16. Red radish extract color (pigment CAS #'s: 528-58-5, 528-53-0, 643-84-5, 134-01-0, 1429-30-7, and 134-04-3).
    17. Saffron extract color (pigment CAS #1393-63-1).
    18. Turmeric extract color (CAS #458-37-7).
e) Dillweed oil (CAS # 8006-75-5).
f) Fish oil (Fatty acid CAS #'s: 10417-94-4, and 25167-62-8)—stabilized with organic ingredients or only with ingredients on the National List, §§205.605 and 205.606.
g) Fructooligosaccharides (CAS # 308066-66-2).
h) Galangal, frozen.

i) Gelatin (CAS # 9000-70-8).
j) Gums—water extracted only (Arabic; Guar; Locust bean; and Carob bean).
k) Inulin-oligofructose enriched (CAS # 9005-80-5).
l) Kelp—for use only as a thickener and dietary supplement
m) Konjac flour (CAS # 37220-17-0).
n) Lecithin—de-oiled.
o) Lemongrass—frozen.
p) Orange pulp, dried.
q) Orange shellac-unbleached (CAS # 9000-59-3).
r) Pectin (non-amidated forms only).
s) Peppers (Chipotle chile).
t) Seaweed, Pacific kombu.
u) Starches.
    1. Cornstarch (native).
    2. Sweet potato starch—for bean thread production only.
v) Tragacanth gum (CAS #-9000-65-1).
w) Turkish bay leaves.
x) Wakame seaweed (*Undaria pinnatifida*).
y) Whey protein concentrate.

Source: European Commission. (2016, September). *My Export*. Retrieved from Trade Export Helpdesk on November 20, 2016

Annex 5: Summary of Council Regulation (EC) No 852/2004 – Food Safety

Hygiene Provisions

1. As far as possible, food business operators are to ensure that primary products are protected against contamination, having regard to any processing that primary products will subsequently undergo.
2. Notwithstanding the general duty laid down in paragraph 2, food business operators are to comply with appropriate Community and national legislative provisions relating to the control of hazards in primary production and associated operations, including:
    a. Measures to control contamination arising from the air, soil, water, feed, fertilizers, veterinary medicinal products, plant protection products and biocides and the storage, handling and disposal of waste; and
    b. Measures relating to animal health and welfare and plant health that have implications for human health, including programs for the monitoring and control of zoonoses and zoonotic agents.
3. Food business operators rearing, harvesting or hunting animals or producing primary products of animal origin are to take adequate measures, as appropriate:
    a. To keep any facilities used in connection with primary production and associated operations, including facilities used to store and handle feed, clean and, where necessary after cleaning, to disinfect them in an appropriate manner;
    b. to keep clean and, where necessary after cleaning, to disinfect, in an appropriate manner, equipment, containers, crates, vehicles and vessels;
    c. as far as possible to ensure the cleanliness of animals going to slaughter and, where necessary, production animals;
    d. to use potable water, or clean water, whenever necessary to prevent contamination;
    e. to ensure that staff handling foodstuffs are in good health and undergo training on health risks;
    f. as far as possible to prevent animals and pests from causing contamination;
    g. to store and handle waste and hazardous substances so as to prevent contamination
    h. to prevent the introduction and spread of contagious diseases transmissible to humans through food, including by taking precautionary measures when introducing new animals and reporting suspected outbreaks of such diseases to the competent authority;

    i. to take account of the results of any relevant analyses carried out on samples taken from animals or other samples that have importance to human health; and
    j. to use feed additives and veterinary medicinal products correctly, as required by the relevant legislation
4. Food business operators producing or harvesting plant products are to take adequate measures, as appropriate:
    a. to keep clean and, where necessary after cleaning, to disinfect, in an appropriate manner, facilities, equipment, containers, crates, vehicles and vessels;
    b. to ensure, where necessary, hygienic production, transport and storage conditions for, and the cleanliness of, plant products;
    c. to use potable water, or clean water, whenever necessary to prevent contamination;
    d. to ensure that staff handling foodstuffs are in good health and undergo training on health risks;
    e. as far as possible to prevent animals and pests from causing contamination;
    f. to store and handle wastes and hazardous substances so as to prevent contamination;
    g. to take account of the results of any relevant analyses carried out on samples taken from plants or other samples that have importance to human health; and
    h. to use plant protection products and biocides correctly, as required by the relevant legislation
5. Food business operators are to take appropriate remedial action when informed of problems identified during official controls

The HACCP system

Businesses in the food sector (other than those involved in arable or livestock farming, hunting or fishing) should apply the principles of **hazard analysis and critical control points** (HACCP) brought in as part of the Codex Alimentarius. These principles, however, do not replace official checks. The aim is to:

- Identify critical control points and monitoring procedures
- Establish corrective measures
- Implement procedures to check whether measures are working effectively;
- Keep records

EU countries must encourage the development of **national guidelines** based on HACCP principles, with the possibility of EU-wide guidelines if this is thought necessary.

Where required by national or EU legislation, businesses in the food sector must be **approved** and all premises **registered** with the appropriate authority.

Food **imported** into the EU and **exported** food of animal origin must comply with EU standards or their equivalent, as well as any requirements which the importing country may impose.

Traceability

1. The traceability of food, feed, food-producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed shall be established at all stages of production, processing and distribution.
2. Food and feed business operators shall be able to identify any person from whom they have been supplied with a food, a feed, a food-producing animal, or any substance intended to be, or expected to be, incorporated into a food or feed. To this end, such operators shall have in place systems and procedures which allow for this information to be made available to the competent authorities on demand.
3. Food and feed business operators shall have in place systems and procedures to identify the other businesses to which their products have been supplied. This information shall be made available to the competent authorities on demand.
4. Food or feed which is placed on the market or is likely to be placed on the market in the Community shall be adequately labelled or identified to facilitate its traceability, through relevant documentation or information in accordance with the relevant requirements of more specific provisions.

Where a firm in the food sector discovers that a food presents a **serious risk to health,** it must immediately withdraw that food from the market, informing users and the relevant authority.

Source: European Commission. (2016, September). *My Export*. Retrieved from Trade Export Helpdesk on December 5, 2016

Annex 6: Food Safety Modernization Act – Import Safety Mandates

§301 Foreign Supplier Verification Program: Requires importers to verify their suppliers use risk-based preventive controls that provide the same level of protection as US requirements.
§302 Voluntary Qualified Importer Program: Allows for expedited review and entry; facility certification required.
§303 Certification for High-Risk Food Imports: FDA has discretionary authority to require assurances of compliance for high-risk foods.
§304 Prior Notice of Imported Food Shipments: Requires information on prior refusals to be added to prior notice submission.
§305 Capacity Building: FDA mandate to work with foreign governments to build food safety capacity.
§306 Inspection of Foreign Food Facilities: Can deny entry if FDA access for inspection is denied.
§307 Accreditation of Third-Party Auditors: FDA can rely on accredited third parties to certify that foreign food facilities meet US requirements.
§308 Foreign Offices of the Food and Drug Administration: Establish offices in foreign countries to provide assistance on food safety measures for food exported to the US.
§309 Smuggled Food: In coordination with DHS, better identify and prevent entry of smuggled food.
§201 Targeting of Inspection Resources: Increased inspection of foreign as well as domestic facilities.

Source: FDA, Presentation on Food Safety Modernization Act: Focus on Imports

References

AgMRC. (2016, January). *Chickpeas*. Agricultural Marketing Resource Center. Retrieved October 20, 2016, from http://www.agmrc.org/commodities-products/vegetables/chickpeas/

Alberta Pulse Growers. (2016). *Pulse Crop News – Storage and Handling of Pulse Crops*. Retrieved on October 31, 2016 from http://pulse.ab.ca/images/uploads/news_publications/WEB_77636_APG-Fall_2015.pdf

Alibaba. (2016) *Wholesale chickpeas*. Retrieved November 7, 2016 from http://www.alibaba.com/trade/search?fsb=y&IndexArea=product_en&CatId=10501&SearchText=chickpeas

Amazon. (2016). *Organic chickpeas*. Retrieved November 5, 2016 from https://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Dgrocery&field-keywords=organic+chickpeas

Anuga. (n.d.). Retrieved on November 10, 2016 from http://www.anuga.de/anuga/die-messe/daten-und-fakten/index.php

Biofach America. (2015). *All things organic*. Retrieved on November 10, 2016 from https://www.biofach-america.com/

bioPress. (2016). *2016 – das Jahr der Hülsenfrüchte*. BioFach. Retrieved on November 8, 2016 from http://www.biopress.de/de/inhalte/details/5479/2016-undndash-das-jahr-der-huelsenfruechte.html/

BLE. (2016, September 1). *Protein Crop Strategy*. Bundesanstalt für Landwirtschaft und Ernährung. Retrieved on October 24, 2016 from http://www.ble.de/DE/00_Home/homepage_node.html

BMEL. (2016, January). *Ökobarometer 2016*. German Federal Ministry of Economics and Technology Food and Agriculture. Retrieved on October 25, 2016 from https://www.oekolandbau.de/fileadmin/redaktion/dokumente/service/Zahlen/infas_praesentation_Oekobarometer_2016.pdf]

CBI Ministry of Affairs. (2016, September 30). *10 Tips for Doing Business With European Buyers of Grains and Pulses*. Retrieved on November 4, 2016 from https://www.cbi.eu/market-information/grains-pulses/doing-business/

CBI Ministry of Affairs. (2015, November). *Fresh Beans and Pulses in Germany*. Retrieved on December 4, 2016 from https://www.cbi.eu/sites/default/files/market_information/researches/product-factsheet-germany-beans-pulses-2016.pdf

CGIAR. (2013, January 28). *Global Research Team Decodes Genome Sequence of 90 Chickpea Lines*. CGIAR System Organization. Retrieved October 17, 2016 from http://www.cgiar.org/consortium-news/global-research-team-decodes-genome-sequence-of-90-chickpea-lines/

Ceres. (2013). *The Future is Now: Ceres Annual Report 2013*. Retrieved on November 29, 2016 from https://www.ceres.org/resources/reports/the-future-is-now-ceres-annual-report-2013-2014/view

Codex Alimentarius. (2016). *Standard for Certain Pulses*. Retrieved on January 7, 2017 from http://www.fao.org/fao-who-codexalimentarius/standards/list-of-standards/en/

Comtrade. (2016). *Chickpeas Import, Export, Re-Import, Re-Export Data*. Retrieved from UN Commodity Trade Statistics Database on October 23, 2016 from http://comtrade.un.org/data/

Diefenbaker Seed Processors Ltd. (2016). *Our Products: Chickpeas.* Retrieved on October 26, 2016 from http://www.dspdirect.ca/chickpeas.php

DIHK. (2014, December 4). *Does the Increasing Digitalization Influence the Business and Work Processes of Companies?* Retrieved from Statista on December 6, 2016 from https://de.statista.com/statistik/daten/studie/479042/umfrage/einfluss-der-digitalisierung-auf-die-geschaefts-und-arbeitsprozesse-in-deutschland/

Eatsmarter. (2016, October). *Chickpeas*. Retrieved on December 4, 2016 from http://eatsmarter.de/lexikon/warenkunde/kichererbsen

Eden, Sarah. (n.d.). *Chickpeas.* Essen & Trinken. Retrieved on October 26, 2016 from http://www.essen-und-trinken.de/kichererbsen#

Euromonitor. (2015, May). *Fresh Food in Germany*. Retrieved November 1, 2016 from http://www.euromonitor.com/fresh-food-in-germany/report

European Commission. (2016A, January 6). *Labeling*. Retrieved on November 10, 2016 from http://exporthelp.europa.eu/thdapp/taxes/show2Files.htm?dir=/requirements&reporterId1=EU&file1=ehir_eu16_04v001/eu/main/req_lblfood_eu_010_0612.h

tm&reporterLabel1=EU&reporterId2=DE&file2=ehir_de16_04v001/de/main/req_lblfood_de_010_0612.htm&reporterLabel2=Germany&label=Labelling+for+foodstuffs&languageId=en&status=PROD

European Commission. (2016B, September). *My Export*. Retrieved on October 21, 2016 from Trade Export Helpdesk: http://exporthelp.europa.eu/thdapp/display.htm?page=rt%2frt_Requirements.html&docType=main&languageId=en

European Commission. (2016C, June 11). *Organic Farming: Consumer Trust*. Retrieved November 1, 2016 from http://ec.europa.eu/agriculture/organic/consumer-trust_en

European Commission. (2014, January 6). *Packaging*. Retrieved on November 10, 2016 from http://exporthelp.europa.eu/thdapp/taxes/show2Files.htm?dir=/requirements&reporterId1=EU&file1=ehir_eu14_03v001/eu/main/req_lblpack_eu_010_0612.htm&reporterLabel1=EU&reporterId2=CY&file2=ehir_cy14_03v001/cy/main/req_lblpack_cy_010_0612.htm&reporterLabel2=C

Eva. (n.d.). *Veggie World*. Retrieved on November 10, 2016 from https://veggieworld.de/event/rhein-main/

FAO. (2015A). *Commodities by Country*. Retrieved from the United Nations Statistics Division on October 21, 2016 from http://faostat3.fao.org/browse/rankings/commodities_by_country/E

FAO. (2015B). *Crops Production Data*. Retrieved on October 22, 2016 from http://faostat3.fao.org/download/Q/QC/E

FAO. (2016A, June). *Food Outlook: Biannual Report on Global Food Markets* (Rep. No. I5703). Retrieved October 20, 2016 from http://www.fao.org/3/a-i5703e.pdf

FAO. (2016B). *Guidelines for the Production, Processing, Labelling, and Marketing of Organically Produced Foods.* Codex Alimentarius. Retrieved on November 08, 2016 from http://www.fao.org/fao-who-codexalimentarius/standards/list-of-standards/en/

FAO. (2016C, October). *Health Benefits of Pulses.* Retrieved October 27, 2016 from http://www.fao.org/pulses-2016/en/

FAO. (2016D, October). *Nutritional Benefits of Pulses.* Retrieved October 27, 2016 from http://www.fao.org/pulses-2016/en/

FAO. (2015). *Prices*. Retrieved from the United Nations Statistics Division on October 22, 2016 from http://faostat3.fao.org/download/P/PP/E

FDA. (2012, March 12). *Food Safety Modernization Act: Focus on Imports*. Retrieved on November 28 from http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm247546.htm

FDF. (n.d.). *Major Non-Tariff Barriers for Food and Drink Exports to US*. Food and Drink Federation. Retrieved on October 31 from http://trade.ec.europa.eu/doclib/docs/2012/july/tradoc_149679.pdf

Food Processing Suppliers Association. (2016). *Process Expo*. Retrieved on November 8, 2016 from http://www.myprocessexpo.com/

Fruit Logistica. (2016). Retrieved on November 10, 2016 from http://www.fruitlogistica.de/AufEinenBlick/DatenFakten/

Garden-Robinson, Julie. (2012, June). *Pulses: The Perfect Food*. Developed for the Northern Pulse Growers Association.

Global Trade. (2015). *Global Trade Magazine*. Retrieved on November 10, 2016 from http://www.globaltrademag.com

GPO. (2016). *Code of Federal Regulations.* Retrieved on October 26, 2016 from: U.S. Government Publishing Office: http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=e33536662d18f367ff1911d756d790ba&mc=true&n=pt7.3.205&r=PART&ty=HTML#se7.3.205_1200

Groeneveld, Dr. Maike. (2016, January 24). *Buying Fresh Pods*. AID Infodienst. Retrieved on October 27, 2016 from https://www.aid.de/inhalt/huelsenfruechteeinkaufvonfrischenhuelsenfruechten4175.html

Hanelt, P. (2001, April). *Chickpea*. (2001, April). Retrieved October 17, 2016, from http://mansfeld.ipk-gatersleben.de/apex/f?p=185:46:::NO::module,mf_use,source,taxid,akzname:mf,,volksnam,30808,Cicer arietinum subsp. arietinum#

Heuzé, V. et al. (2015, October 20). *Chickpea (Cicer arietinum)*. Feedipedia, a programme by INRA, CIRAD, AFZ and FAO. Retrieved October 17, 2016 from http://www.feedipedia.org/node/319

IPD. (2015, November). *Fresh Beans & Pulses in Germany*. Retrieved November 1, 2016 from CBI Market Information Database: http://www.importpromotiondesk.de/fileadmin/user_upload/Publikationen/factsheet/obst_gemuese/Beans___Pulses_160331_eng.pdf

IRI, New York Times, The Oregonian. (2014, May 18). *Retail Sales of Hummus in the United States from 1997 to 2014*. Retrieved from Statista on December 6, 2016 from https://libproxy.uww.edu:3186/statistics/440990/us-hummus-retail-sales/

ITC. (2016). *Market Access Map*. Retrieved on October 21, 2016 from http://www.macmap.org/QuickSearch/FindTariff/FindTariffResults.aspx?product=0713200000&country=276&year=2016&source=1|ITC&AVE=1

Konsum Dresden. (2016, April 19). *Trends from the Oriental Cuisine.* Retrieved on October 27, 2016 from https://www.konsum.de/trendsausderorientalischenkueche/

Köpke, Dr. U. & Küpper, P.M. (2016, October) *Organic Market Shares.* Institute for Organic Agriculture, University of Bonn. Retrieved on October 26, 2016 from https://www.iol.uni-bonn.de/iol-studie-marktanteile-im-segment-bio-lebensmittel.pdf

Kreutz, Heike & Planner, Jörg. (2016, May 13). *2016 - The year of legumes.* AID Infodienst. Retrieved on October 27, 2016 from https://www.aid.de/inhalt/2016-das-jahr-der-huelsenfruechte-6290.html

Ladizinsky, G., & Alder, A. (1976). The origin of chickpea. *Euphytica*, *25*, 211-217.

LfL. (2014, January). *Chickpea Cultivation and Utilization*. Bayerische Landesanstalt für Landwirtschaft. Retrieved on October 29, 2016 from https://www.lfl.bayern.de/mam/cms07/publikationen/daten/informationen/059723_kichererbse.pdf

M+A Expodatabase. (n.d.). *Natural Products Expo West: Exhibition and Conference for Natural Products*. Retrieved on November 10, 2016 from http://www.expodatabase.de/veranstalter/messen/show.php?id=11612&timer=m1478776024&tmid=&currPage=1&maxPerPage=20&params=timer%3Dm1478776024%26amp%3Btimer%3Dm1478776024%26amp%3Bi_cockpitkeyfindwo%3D2%26amp%3Bi_cockpitkeywords%3Dnatural%2Bexpo%2Bwest%26amp%3Bi_cockpitkeyfindart%3D1%26amp%3Bsortierid%3D0%26amp%3Btimer%3Dm1478776024%26amp%3BmaxPerPage%3D20%26amp%3BshowPrintlist%3D0%26amp%3BmaxPerPage%3D20 (access: 11/10/16)

M+A Expodatabase. (n.d.). *Process Expo: The Global Food Equipment and Technology Show.* Retrieved on November 10, 2016 from http://www.expodatabase.com/tradeshow/process-expo-the-global-food-equipment-technology-show-15776.html (access: 11/10/16)

Mason, Werner & Boos, Daniel. (2016, August 20). *Beans, Peas, Lentils: Power Pods Rediscovered.* WDR. Retrieved on October 21, 2016 from http://www1.wdr.de/fernsehen/dervorkoster/sendungen/bohnenerbsenlinsen100.html 1/3

New Hope Network. (2016). *Natural Products Expo West.* Retrieved on November 8, 2016 from http://www.expowest.com/ew17/Public/Enter.aspx

New World Encyclopedia. (2008, August 13). *Chickpea*. Retrieved October 17, 2016 from http://www.newworldencyclopedia.org/p/index.php?title=Chickpea&oldid=781041

Nielsen. (2016A, May 28). *Dollar Sales Growth of the Leading Five Pulses in the United States in 2016*. Retrieved from Statista on December 7, 2016 from https://www.statista.com/statistics/599293/dollar-sales-growth-leading-five-pulses-us-by-category/

Nielsen. (2016B, May 28). *Sales Value of the Leading Five Pulses in the United States in 2016*. Retrieved from Statista on December 7, 2016 from https://libproxy.uww.edu:3186/statistics/598435/sales-value-leading-five-pulses-us-by-category/

Nielsen. (2016C). *Share of People Who Follow a Vegetarian Diet Worldwide as of 2016*. Retrieved from Statista on December 7, 2016 from https://www.statista.com/statistics/597408/vegetarian-diet-followers-worldwide-by-region/

OECD. (2011, March). *Proportion of Obese Adults to the Total Population in Germany and the USA in the Period 1999 to 2009*. Handelsblatt. Retrieved on October 27, 2016 from https://de.statista.com/statistik/daten/studie/181660/umfrage/fettleibigkeit-in-deutschland-und-den-usa-seit-1999/

Oekolandbau. (2016, September 31). *Bio-Siegel*. Retrieved on November 10, 2016 from https://www.oekolandbau.de/en/bio-siegel/

Organic.org. (2016). *Organic FAQ*. Retrieved October 17, 2016 from http://www.organic.org/home/faq

Organic Market. (2016, October). *Bio-Addresses Worldwide: Organic Wholesalers*. Retrieved on November 5, 2016 from http://organic-market.info/wholesale-7.html?ap=&category_id=0&country_id=1

Organic Report. (2015). *Organic Report Magazine*. Retrieved on November 9, 2016 from http://theorganicreport.com/

OTA. (n.d.). *Organic Food Sales in the United States from 2005 to 2015*. Organic Trade Association. Retrieved on October 27, 2016 from https://libproxy.uww.edu:3186/statistics/196952/organic-food-sales-in-the-us-since-2000/

OTA. (2016, May 19). *US Organic Sales Post New Record of $43.3 billion in 2015*). Organic Trade Association: Food Manufacturing. Retrieved on October 31, 2016 from http://libproxy.uww.edu:2094/abicomplete/docview/1789966597/44012C3FA5E74510PQ/2?accountid=14791

Pulse Australia. (2016, January 15). *Best Management Guide*. Retrieved October 17, 2016 from http://www.pulseaus.com.au/growing-pulses/bmp/chickpea/northern-guide#Placeintherotation

Posener, Alan. (2009, May 30). *Germany Revolves Around the Döner, Thankfully.* Retrieved on December 5, 2016 from https://www.welt.de/politik/article3830043/Deutschland-dreht-sich-um-den-Doener-zum-Glueck.html

Rehder, Leif Erik. (2016, January 6). *Organic Food Retail 2016*. Retrieved from USDA Foreign Agricultural Service on October 20, 2016 from http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Organic%20Food%20Retail%202016_Berlin_Germany_1-6-2016.pdf

Rewe. (2016). *Chickpeas*. Retrieved November 4, 2016 from https://shop.rewe.de/productList?selectedFacets=category%3DKochen%2520%2526%2520Backen%2FNudeln%2C%2520Reis%2520%2526%2520Co%2FH%25C3%25BCIsenfr%25C3%25BCchte%2FKichererbsen

Singh, K.B. (1997). Chickpea (Cicer arietinum L.). *Field Crop Res.*, *53*, 161-170

The Organic Standard. (2016). Retrieved on November 8, 2016 from http://organicstandard.com/

USADPLA. (2010). *Processing Information & Technical Manual.* Retrieved on October, 2016 from http://www.pea-lentil.com/technical-manual

USPLTA. (2008, October 17). *Trade Rules 2008*. Retrieved on November 1, 2016 from http://www.pea-lentil.com/core/files/pealentil/uploads/files/2008TradeRules(1).pdf

US Census Bureau. (2014). *Percentage of Population in the United States in 2014 and 2016, by Race and Hispanic Origin*. Retrieved October 26, 2016 from https://libproxy.uww.edu:3186/statistics/270272/percentage-of-us-population-by-ethnicities/

US Census Bureau. (2015). *Grocery Store Sales in the United States from 1992 to 2015*. Retrieved from Statista on December 7, 2016 from https://www.statista.com/statistics/197621/annual-grocery-store-sales-in-the-us-since-1992/

USDA ERS. (2016). *Dry Beans*. United States Department of Agriculture Economic Research Service. Retrieved October 21, 2016 from http://www.ers.usda.gov/topics/crops/vegetables-pulses/dry-beans.aspx

USDA. (2012). *Importing Food and Agricultural Products into the United States*. Retrieved on November 08, 2016, from http://www.aphis.usda.gov/publications/plant_health/2012/fs_imp_food_ppq.pdf

USDA. (2014). *Organic Labeling.* Retrieved on November 08, 2016 from https://www.ams.usda.gov/rules-regulations/organic/labeling

USDA. (2016). *Organic Labeling Standards*. Retrieved on November 08, 2016 from https://www.ams.usda.gov/grades-standards/organic-labeling-standards

USITC. (2016, August). *United States International Trade Commission.* Retrieved on October 21, 2016 from: Harmonized Tariff Schedule: https://hts.usitc.gov/current

VEBU. (2015, January). *Number of Vegans and Vegetarians in Germany.* Vegetarierbund Deutschland. Retrieved on October 27, 2016 from https://vebu.de/veggie-fakten/entwicklung-in-zahlen/anzahl-veganer-und-vegetarier-in-deutschland/

VEBU. (2016, October). *Vegan Nutritional Pyramid.* Vegetarierbund Deutschland. Retireved on October 26, 2016 from https://vebu.de/fitness-gesundheit/ernaehrungspyramide/vegane-ernaehrungspyramide/

VRG.org. (2016, April 29). *How Many Adults in the U.S. are Vegetarian and Vegan? How Many Adults Eat Vegetarian and Vegan Meals When Eating Out?* The Vegetarian Resource Group. Retrieved October 27, 2016 from http://www.vrg.org/blog/2016/04/29/how-many-adults-in-the-u-s-are-vegetarian-and-vegan-how-many-adults-eat-vegetarian-and-vegan-meals-when-eating-out/

Walmart. (2016). *Chickpeas*. Retrieved November 5, 2016 from https://www.walmart.com/search/?query=chickpeas&cat_id=976759_976794_1001478

Wholefoods. (2016). *Online ordering*. Retrieved November 6, 2016 from http://www.wholefoodsmarket.com/online-ordering

World Integrated Trade Solution. (2010). *Types of Tariffs.* The World Bank. Retrieved on October 21, 2016 from http://wits.worldbank.org/wits/wits/witshelp/Content/Data_Retrieval/P/Intro/C2.Types_of_Tariffs.htm

ZALF. (2016, October 28). *Pulse – An Old Food with a Great Future?* Leibniz-Zentrum für Agrarlandschaftsforschung. Retrieved on October 31, 2016 from http://communications.ext.zalf.de/sites/huelsenfrucht/SitePages/Podiumsdiskussion.aspx