

Results of Official Testing of Specified Feed Additives (FY 2018)

Specified feed additives mean the feed additives for which the standards are set in accordance with the provision of Article 3, paragraph 1 of the Act on Safety Assurance and Quality Improvement of Feeds (Act No. 35 of 1953; hereinafter referred to as “Feed Safety Act”) and which are the antibacterial preparations specified in Article 2, item 2 of the Enforcement Order of the Act on Safety Assurance and Quality Improvement of Feeds (Enforcement Order No. 198 of 1976). Only the specified feed additives with a certificate of passing the official testing which the Food and Agricultural Materials Inspection Center (hereinafter referred to as “FAMIC”) conducts in accordance with the provisions of Article 5, paragraph 1 of the Feed Safety Act may be distributed; provided, however, that those manufactured by the manufacturers of specified feed additives registered under Article 7, paragraph 1 of the Feed Safety Act (hereinafter referred to as “registered manufacturers of specified feed additives”) on which the indication referred to in Article 16 paragraph 1 of the same Act is placed and those manufactured by the foreign manufacturers of specified feed additives registered under Article 21, paragraph 1 which the indication referred to the paragraph 2 of the same Article is placed on may be distributed.

The following report is the summary of the results of the specified feed additives which were applied for FAMIC and passed the official testing in the previous Japanese fiscal year (FY) 2018. The quantity and others of the specified feed additives manufactured by the registered manufacturers of specified feed additives in FY 2018 are also reported. As of the end of March in 2019, there is no foreign registered manufacturer of specified feed additives.

1. Names of applicants and others

[Table 1](#) shows the names of applicants and others concerning the specified feed additives passed the official testing in FY 2018.

There were five applicants (seven in the previous FY) applied the official testing of specified feed additives. The manufacturing forms and others of these applicants: three of them manufactured preparations, one of them imported raw materials for manufacturing and manufactured preparations, and other one imported preparations. All of the raw materials for manufacturing were manufactured in foreign countries.

There were 6 types of specified feed additives, corresponding to 8 brands, passed the official testing in FY 2018 (9 types and 14 brands in the previous FY).

Raw materials for manufacturing or preparations were imported from: 1) China for enramycin (raw material for manufacturing), and nosiheptide (raw material for manufacturing), 2) the UK for avilamycin (preparation), 3) the USA for narasin (preparation), 4) Bulgaria for monensin sodium (raw material for manufacturing), and 5) China and Bulgaria for salinomycin sodium (raw material for manufacturing). The number of the import source countries was 4 (5 in the previous FY).

2. Number of the official testing-passed cases of the specified feed additives by type and others

[Table 2](#) shows the results of the number of the official testing-passed cases, the official testing-

passed quantity, and the quantity converted from the actual quantity into potency of the specified feed additives by type in FYs 2016, 2017, and 2018.

In FY 2018, 126 cases were passed the official testing. The official testing-passed quantity and the quantity converted from the actual quantity into potency were 590 tons and 69 tons (potency), respectively. Compared with the previous FY, the official testing-passed cases, the official testing-passed quantity, and the quantity converted from the actual quantity into potency were all decreased, and the ratio to the previous FY were 82.9 %, 81.4 %, and 84.5 %, respectively.

The percentage of the specified feed additives in the total official testing-passed quantity by type was 37.1 %, which was the highest one, for salinomycin sodium (33.8 % in the previous FY), followed in descending order by 25.4 % for narasin (31.8 % in the previous FY), 22.2 % for avilamycin (13.7 % in the previous FY), and 12.3 % for nosiheptide (8.6 % in the previous FY). The percentage of them in the total of the quantity converted from the actual quantity into potency was 38.1 % for avilamycin (24.3 % in the previous FY), followed in descending order by 31.8 % for salinomycin sodium (30.0 % in the previous FY), 21.8 % for narasin (28.3 % in the previous FY), and 4.2 % for nosiheptide (3.1 % in the previous FY).

Compared with the previous FY, the official testing-passed quantity and the quantity converted from the actual quantity into potency of avilamycin, enramycin, monensin sodium, and nosiheptide increased, while those of narasin, and salinomycin sodium decreased. There was no apply for FAMIC of colistin sulfate, flavophospholipol, and tylosin phosphate which were applied in the previous FY. Based on “Guidelines for Formulating Risk Management Measures for Antibacterial Feed Additives” of the Ministry of Agriculture, Forestry and Fisheries (hereinafter referred to as “MAFF”), the four types of specified feed additives were revoked from April 1, 2018 to May 31, 2019 that showed by [Table 3](#).

Alkyltrimethylammonium calcium oxytetracycline* and chlortetracycline* since FY 2018, zinc bacitracin since FY 2016, lasalocid sodium since FY 2010, virginiamycin since FY 2008, semduramicin sodium since FY 2007, efrotomycin since FY 2005, and bicozamycin since FY 1999 have not been subjected to the official testing, and all of them were not subjected to in FY 2018 either.

In addition, lasalocid sodium were not subjected to the official testing, but were manufactured by the registered manufacturers of specified feed additives as shown in [Table 4](#).

*Oxytetracycline and chlortetracycline were revoked as specified feed additives on December 27, 2019.

3. The number of the official testing-passed cases of the specified feed additives by refining grade and feed grade and others

The specified feed additives are classified as the refining grade or the feed grade according to the difference of the post-cultivation manufacturing methods. The former is derived from the high purity raw materials for manufacturing in which the only active constituent of an antibiotic is extracted from a culture solution and then refined, while the latter is derived from the raw materials for manufacturing in which a culture solution containing the active constituent of an antibiotics, a medium component and a fungus compound used for manufacturing is dried.

[Table 5](#) shows the number of the official testing-passed cases, the official testing-passed quantity, and the quantity converted from the actual quantity into potency of the specified feed additives by refining grade and feed grade in FY 2018.

The feed grade of the specified feed additives accounted for; 83.3 % of the total official testing-passed cases (73.7% in the previous FY), 85.6 % of the total official testing-passed quantity (80.2 % in the previous FY), and 92.2 % of the total quantity converted from the actual quantity into potency (83.3 % in the previous FY). Compared with the previous FY, all of them (the total of the official testing-passed cases, official testing-passed quantity, and quantity converted from the actual quantity into potency) by feed grade increased and accounted for higher than by refining grade.

Both the feed grade and refining grade standards are provided for nosiheptide, and salinomycin sodium. In FY 2018, only the refining grade of nosiheptide, and only the feed grade of salinomycin sodium were subjected to the official testing.

4. Changes in the official testing-passed quantity and others of the specified feed additives by category

[Figures 1 and 2](#) show the changes in the official testing-passed quantity and the quantity converted from the actual quantity into potency by category of the specified feed additives over the last decade, from FY 2009 to FY 2018, respectively.

The total of the official testing-passed quantity had been showing a tendency to decrease while increasing or decreasing since FY 2009, and in particular, in the last two years, it significantly decreased by 20 % from the previous FY. The quantity converted from the actual quantity into potency also decreased by 15 % from the previous FY, so that showed the same trend.

As for the official testing-passed quantity of the specified feed additives by category, polyether antibiotics was highest in each FY (excluding FY 2010) and has hovered at a rate of around 50 % of the total. There were the polyether antibiotics, the polypeptide antibiotics, and the other in order until last FY. In FY 2018, the polyether antibiotics accounted for 65 % of the total (67 % in the previous FY), followed by the other, 22 % (14 % in the previous FY) and the polypeptide antibiotics, 13 % (18 % in the previous FY), in order.

The quantity converted from the actual quantity into potency showed the same trend until FY 2016. But from FY 2017, the order of the polypeptide antibiotics and the order was reserved. The polyether antibiotics accounted for 57 % (60 % in the previous FY), followed by the order, at 38.1 % (24.3 % in the previous FY), and the polypeptide antibiotics, at 5 % (11 % in the previous FY), in order. The reason why the order of the others and the polypeptides was reversed is thought to be the revocation of the designation for colistin sulfate and the increase in the number of applications for aviramycin. In FY 2018, there were no applications for macrolides, tetracyclines, and phosphoglycolipids.

5. Quantity of the specified feed additives manufactured by the registered manufacturers of specified feed additives

As of the end of March in 2019, the 3rd plant, Kyushu Plant, Kohkin Chemical Co., Ltd. is

registered as a place of business as a manufacturer of specified feed additives concerning nosiheptide, and Tatsuno Factory, Scientific Feed Laboratory Co., Ltd., is registered as a place of business as a manufacturer of specified feed additives concerning enramycin, lasalocid sodium, monensin sodium, nosiheptide, and salinomycin sodium. From FY 2017, the 3rd plant, Kyusyu Plant, Kohkin Chemical Co., Ltd. did not manufacture any registered specified feed additives.

Table 4 shows the manufactured quantity and the quantity converted from the actual quantity into potency of the specified feed additives by the registered manufacturers of specified feed additives in FY 2018. Moreover, lasalocid sodium which have not undergone the official testing as a specified feed additive in FY 2017 showed by table 2 were manufactured by the registered manufacturers of specified feed additives.

The quantity of the specified feed additives manufactured by the registered manufacturers of specified feed additives in FY 2018 was 907 tons (106 % over the previous FY) and the quantity converted from the actual quantity into potency was 128 tons (potency) (104 % over the previous FY).

The descending order of the manufactured quantity in FY 2018 was salinomycin sodium, monensin sodium, lasalocid sodium, and enramycin.

The descending order of the quantity converted from the actual quantity into potency was monensin sodium, salinomycin sodium, lasalocid sodium, enramycin, and colistin sulfate.

6. Total manufactured quantity of the specified feed additives

[Table 6](#) shows the total manufactured quantity and the total quantity converted from the actual quantity into potency in FY 2018, which are the total of the official testing-passed quantity of the specified feed additives and the quantity manufactured by the registered manufacturers of specified feed additives.

The total manufactured quantity by category in FY 2018 was highest for the polyether antibiotics, 1,212 tons (official testing: 381 tons; registration: 831 tons), which accounted for 81.0 % of the total. The descending order by type was salinomycin sodium (41.1 %), monensin sodium (23.3 %), and narasin (10.0 %). The total quantity converted from the actual quantity into potency by category was also highest for the polyether antibiotics, 161 tons (official testing: 39 tons; registration: 122 tons), which accounted for 81.9 % of the total. The descending order by type was monensin sodium (35.5 %), salinomycin sodium (31.3 %), and avilamysin (13.3 %).

[Figures 3 and 4](#) show the changes in the total manufactured quantity and the total quantity converted from the actual quantity into potency of the specified feed additives by category over the last decade, from FY 2009 to FY 2018, respectively.

The registered manufacturers have manufactured specified feed additives since FY 2007. The manufacturing of specified feed additives by the registered manufacturers increased due to the significant addition of registered brand of the specified feed additives in FY 2009. Since then, it has been increasing year by year, and since FY 2017, it has exceeded the number of products that have passed the official test.

In FY 2018, the percentage of production by registered manufacturers accounted for 60.6 % and

65.0 % (54.1 % and 60.1 % in the previous FY) of the total manufactured quantity and the total quantity converted from the actual quantity into potency of the specified feed additives respectively. The official testing-passed quantity has decreased but the manufacturing of specified feed additives by the registered manufacturers has increased. So that the total manufactured quantity and the total quantity converted from the actual quantity into potency have hovered at a rate of around 1,600 ton and 200 ton, respectively.

7. Summary

1) The results of the official testing of the specified feed additives and the manufacturing by the registered manufacturers of specified feed additives in FY 2018 were as follows.

- ① There were 6 types of specified feed additives, corresponding to 8 brands, that were applied by 5 business entities and passed the official testing.
- ② The number of the official testing-passed cases, the official testing-passed quantity, and the quantity converted from the actual quantity into potency were 126 cases, 590 tons, and 69 tons (potency), respectively. Compared to the previous FY, all of them were decreased.
- ③ Compared between percentages of the refining grade and the feed grade on the official testing-passed quantity and the quantity converted from the actual quantity into potency of the specified feed additives, the feed grade accounted for 86 % and 92 % of the total respectively.
- ④ The official testing-passed quantity of the specified feed additives by type was highest of salinomycin sodium, followed by narasin and avilamycin in descending order. The quantity converted from the actual quantity into potency of the specified feed additives passed the official testing by type was highest for avilamycin, followed by salinomycin sodium and narasin in descending order.
- ⑤ The official testing-passed quantity of the specified feed additives by category was highest of polyether antibiotics, followed by the other and polypeptide antibiotics in decreasing order. The quantity converted from the actual quantity into potency of the specified feed additives by category showed the same result.

2) The results of the manufacturing of the specified feed additives by the registered manufacturers of specified feed additives in FY 2018 were as follows.

- ① There were two factories of two business entities that have registered manufacturers of specified feed additives.
- ② In fact that one factory of one business entity manufactured seven types of the specified feed additives, and the manufactured quantity and the quantity converted from the actual quantity into potency of the specified feed additives were 907 ton, and 128 ton, respectively. The type of manufactured by registered manufacturers were decreased but the manufactured quantity and the quantity converted from the actual quantity into potency (of the specified feed additives) were increased in compared with FY 2017.
- ③ The quantity of the specified feed additives manufactured by the registered manufacturers of specified feed additives by type was highest for salinomycin sodium, followed by monensin sodium and lasalocid sodium in descending order. The quantity converted from the actual

quantity into potency of the specified feed additives manufactured by the registered manufacturers of specified feed additives by type was highest for monensin sodium, followed by salinomycin sodium and lasalocid sodium in descending order.

3) The results of the total quantity of the specified feed additives in FY 2018 were as follows.

- ① There were four types of the specified feed additives that were revoked from April 1, 2017 to May 31, 2019.
- ② The total manufactured quantity and others which are the total of the official testing-passed quantity of the specified feed additives and the quantity manufactured by the registered manufacturers of specified feed additives, by type was salinomycin sodium, monensin sodium, and narasin in descending order. The total quantity converted from the actual quantity into potency was monensin sodium, salinomycin sodium, and narasin in descending order.
- ③ The official testing-passed quantity has decreased and the manufactured quantity by the registered manufacturers of the specified feed additives has increased. The total manufactured quantity and the total of quantity converted from the actual quantity into potency have hovered at a rate of around 1,600 ton and 200 ton, respectively.

Table 1: Names of applicants and others for the official testing of the specified feed additives (FY 2018)

Contact office of FAMIC	Name of applicant	Place of manufacturing	Type of the specified feed additives	Feed grade	Content potency (mg (potency)/g)
Headquarters	Japan Nutrition Co., Ltd.	Ibaraki	Salinomycin sodium	○	100
	Nichiku Yakuhin Kogyo Corporation	Kanagawa	Monensin sodium		200
			Salinomycin sodium	○	100
	Rokku Chemical Products Co., Ltd.	Shizuoka	Enramycin	○	80
			Salinomycin sodium	○	100
	Kobe	Elanco Japan K.K.	*	Avilamycin	○
Narasin				○	100
Scientific Feed Laboratory Co., Ltd.		Hyogo	Nosiheptide		40
Total	5 business entities	5 places	6 Types		8 brands

* Blank for an importer

Table 2: Number of the official testing-passed cases, official testing-passed quantity, and quantity converted into potency of specified feed additives (Sorted by the type of the antibiotics, FYs 2016 to 2018)

Category	Type of the specified feed additives	FY 2016					FY 2017					FY 2018				
		Passed cases	Passed quantity	Compo- sition ratio	Quantity converted into potency	Compo- sition ratio	Passed cases	Passed quantity	Compo- sition ratio	Quantity converted into potency	Compo- sition ratio	Passed cases	Passed quantity	Compo- sition ratio	Quantity converted into potency	Compo- sition ratio
Polypeptide antibiotics	Colistin sulfate	55	212,680	24.4	21,268	22.8	15	60,800	8.4	6,080	7.5	—	—	—	—	—
	Enramycin	2	4,820	0.6	386	0.4	2	4,940	0.7	395	0.5	2	5,380	0.9	430	0.6
	Nosiheptide	15	60,000	6.9	2,400	2.6	20	62,200	8.6	2,488	3.1	18	72,720	12.3	2,909	4.2
	Zinc bacitracin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Subtotal	72	277,500	31.9	24,054	25.8	37	127,940	17.7	8,963	11.0	20	78,100	13.2	3,339	4.9
Tetracycline antibiotics	Alkyltrimethylammonium calcium oxytetracycline	1	1,400	0.2	560	0.6	—	—	—	—	—	—	—	—	—	—
	Chlortetracycline	3	14,000	1.6	1,400	1.5	—	—	—	—	—	—	—	—	—	—
	Subtotal	4	15,400	1.8	1,960	2.1	0	0	0.0	0	0.0	0	0	0.0	0	0.0
Macrolide antibiotics	Tylosin phosphate	1	5,039	0.6	1,386	1.5	3	12,611	1.7	3,468	4.3	—	—	—	—	—
	Subtotal	1	5,039	0.6	1,386	1.5	3	12,611	1.7	3,468	4.3	0	0	0.0	0	0.0
Phosphoglycolipid antibiotics	Flavophospholipol	1	1,250	0.1	100	0.1	1	1,250	0.2	100	0.1	—	—	—	—	—
	Subtotal	1	1,250	0.1	100	0.1	1	1,250	0.2	100	0.1	0	0	0.0	0	0.0
Polyether antibiotics	Lasalocid sodium	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Monensin sodium	4	11,500	1.3	2,300	2.5	2	8,020	1.1	1,604	2.0	3	12,160	2.1	2,432	3.5
	Narasin	18	197,500	22.7	19,750	21.2	22	230,550	31.8	23,055	28.3	14	149,825	25.4	14,983	21.8
	Salinomycin sodium	72	289,487	33.3	28,949	31.1	60	244,487	33.8	24,449	30.0	53	218,560	37.1	21,856	31.8
	Semduramicin sodium	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Subtotal	94	498,487	57.3	50,999	54.8	84	483,057	66.7	49,108	60.3	70	380,545	64.5	39,271	57.1
Others	Avilamycin	20	72,950	8.4	14,590	15.7	27	99,050	13.7	19,810	24.3	36	130,975	22.2	26,195	38.1
	Bicozamycin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Efrotomycin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Virginiamycin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Subtotal	20	72,950	8.4	14,590	15.7	27	99,050	13.7	19,810	24.3	36	130,975	22.2	26,195	38.1
Total		192	870,626	100.0	93,088	100.0	152	723,908	100.0	81,449	100.0	126	589,620	100.0	68,805	100.0
Ratio to the previous fiscal year (%)		#REF!	#REF!	▲	#REF!	▲	79.2	83.1	▲	87.5	▲	82.9	81.4	▲	84.5	▲

Note: Quantity and others of the specified feed additives manufactured by the registered manufacturers are shown separately in Table 4.

Table 3: List of the specified feed additives that were revoked by MAFF

Type of the specified feed additives	Date of revocation
Virginiamycin	July 1, 2017
Colistin sulfate	July 1, 2017
Efrotomycin	December 27, 2017
Tylosin phosphate	May 1, 2019
4 types	

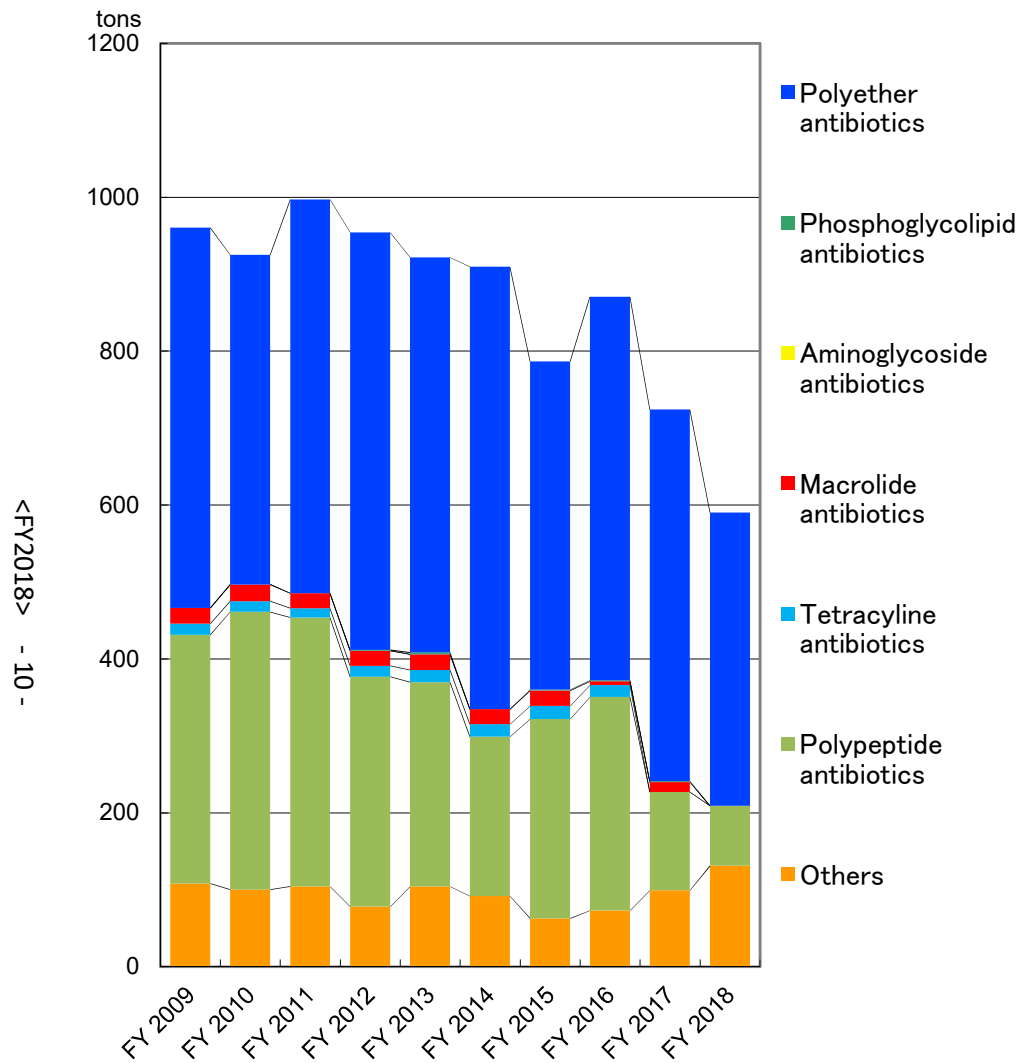


Figure 1: Changes in the official testing-passed quantity of the specified feed additives (Sorted by category of antibiotics)

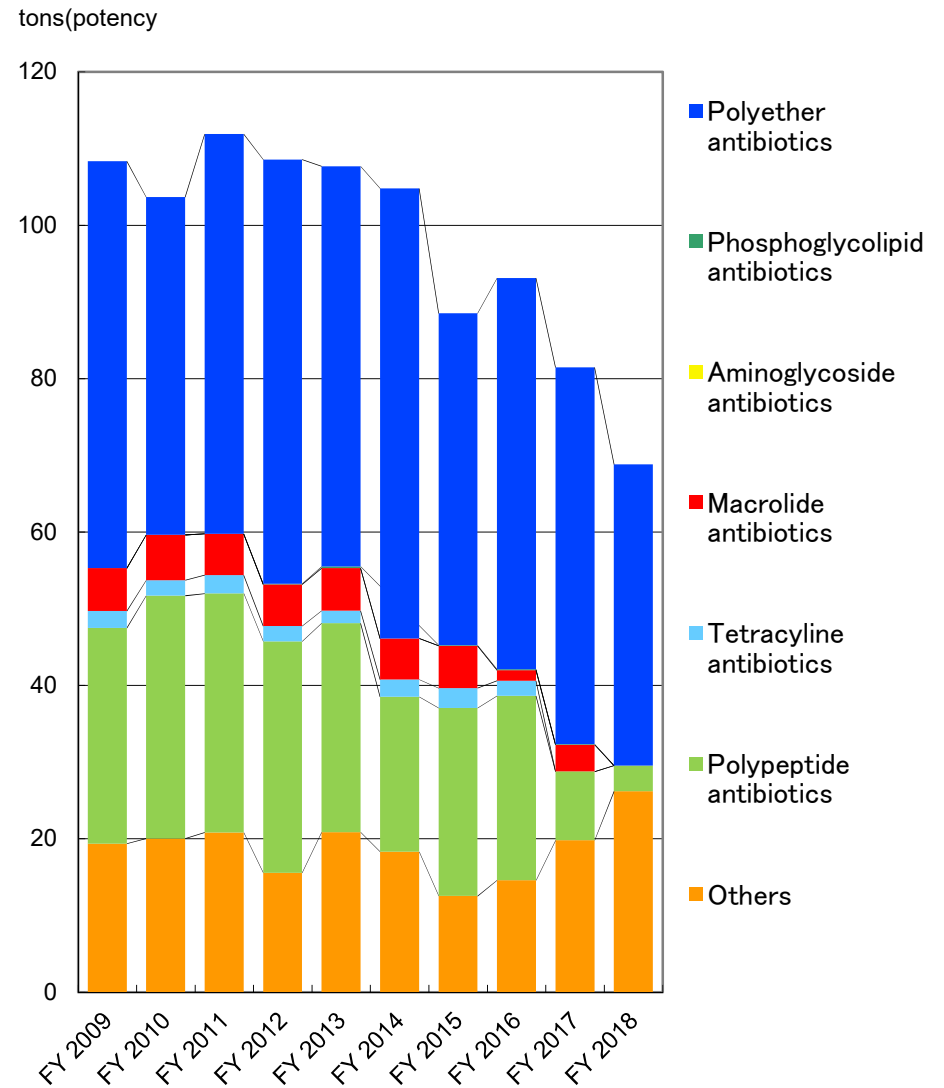


Figure 2: Changes in the official testing-passed quantity of the specified feed additives converted into potency (Sorted by category of antibiotics)

Table 4: Manufactured quantity by the registered manufacturers of specified feed additives (FY 2017 and 2018)

Category	Type of the specified feed additives	FY 2017		FY 2018	
		Manufactured quantity*	Quantity converted into potency	Manufactured quantity*	Quantity converted into potency
		kg	kg(potency)	kg	kg(potency)
Polypeptide antibiotics	Colistin sulfate	1,120	112	—	—
	Enramycin	76,300	6,104	75,340	6,027
	Nosiheptide	—	—	—	—
	Subtotal	77,420	6,216	75,340	6,027
Polyether antibiotics	Lasalocid sodium	140,280	21,042	98,160	14,724
	Monensin sodium	318,800	63,760	336,800	67,360
	Salinomycin sodium	315,780	31,578	396,260	39,626
	Subtotal	774,860	116,380	831,220	121,710
Total		852,280	122,596	906,560	127,737
Ratio to the previous fiscal year (%)		101	105	106	104

* Hearing from each registered manufacturer of specified feed additives.

Table 5: Number of the official testing-passed cases, official testing-passed quantity, and quantity converted into potency

(Sorted by the grade of the preparation, FY 2018)

Category	Type of the specified feed additives	Refining grade			Feed grade		
		Passed cases	Passed quantity kg	Quantity converted into potency kg(potency)	Passed cases	Passed quantity kg	Quantity converted into potency kg(potency)
Polypeptide antibiotics	Colistin sulfate	—	—	—	—	—	—
	Enramycin	/	/	/	2	5,380	430
	Nosiheptide	18	72,720	2,909	—	—	—
	Zinc bacitracin	/	/	/	—	—	—
Tetracycline antibiotics	Alkyltrimethylammonium calcium oxytetracycline	—	—	—	/	/	/
	Chlortetracycline	/	/	/	—	—	—
Macrolide antibiotics	Tylosin phosphate	—	—	—	/	/	/
Phosphoglycolipid antibiotics	Flavophospholipol	/	/	/	—	—	—
Polyether antibiotics	Lasalocid sodium	—	—	—	/	/	/
	Monensin sodium	3	12,160	2,432	/	/	/
	Narasin	/	/	/	14	149,825	14,983
	Salinomycin sodium	—	—	—	53	218,560	21,856
	Semduramicin sodium	—	—	—	/	/	/
Others	Avilamycin	/	/	/	36	130,975	26,195
	Bicozamycin	—	—	—	/	/	/
	Efrotomycin	—	—	—	/	/	/
	Virginiamycin	—	—	—	/	/	/
Total		21	84,880	5,341	105	504,740	63,464
Proportion (%)		16.7	14.4	7.8	83.3	85.6	92.2

Note: Shaded lines mean that there is no standard for the category.

Table 6: Total manufactured quantity of the specified feed additives (FY 2018)

Category	Type of specified feed additives	Total quantity ^{*1}	Composition ratio	Total quantity converted into potency ^{*2}	Composition ratio
		(kg)	(%)	(kg(potency))	(%)
Polypeptide antibiotics	Colistin sulfate	—	—	—	—
	Enramycin	80,720	5.4	6,457	3.3
	Nosiheptide	72,720	4.9	2,909	1.5
	Zinc bacitracin	—	—	—	—
	Subtotal	153,440	10.3	9,366	4.8
Tetracycline antibiotics	Alkyltrimethylammonium calcium oxytetracycline	—	—	—	—
	Chlortetracycline	—	—	—	—
	Subtotal	0	0.0	0	0.0
Macrolide antibiotics	Tylosin phosphate	—	—	—	—
	Subtotal	0	0.0	0	0.0
Phosphoglycolipid antibiotics	Flavophospholipol	—	—	—	—
	Subtotal	0	0.0	0	0.0
Polyether antibiotics	Lasalocid sodium	98,160	6.6	14,724	7.5
	Monensin sodium	348,960	23.3	69,792	35.5
	Narasin	149,825	10.0	14,983	7.6
	Salinomycin sodium	614,820	41.1	61,482	31.3
	Semduramicin sodium	—	—	—	—
	Subtotal	1,211,765	81.0	160,981	81.9
Others	Avilamycin	130,975	8.8	26,195	13.3
	Bicozamycin	—	—	—	—
	Efrotomycin	—	—	—	—
	Virginiamycin	—	—	—	—
	Subtotal	130,975	8.8	26,195	13.3
Total		1,496,180	100.0	196,542	100.0

*1 The total quantity of the specified feed additives of the official testing-passed quantity and the quantity manufactured by the registered manufacturers

*2 The total quantity converted into potency of the official testing-passed quantity and the quantity manufactured by the registered manufacturers

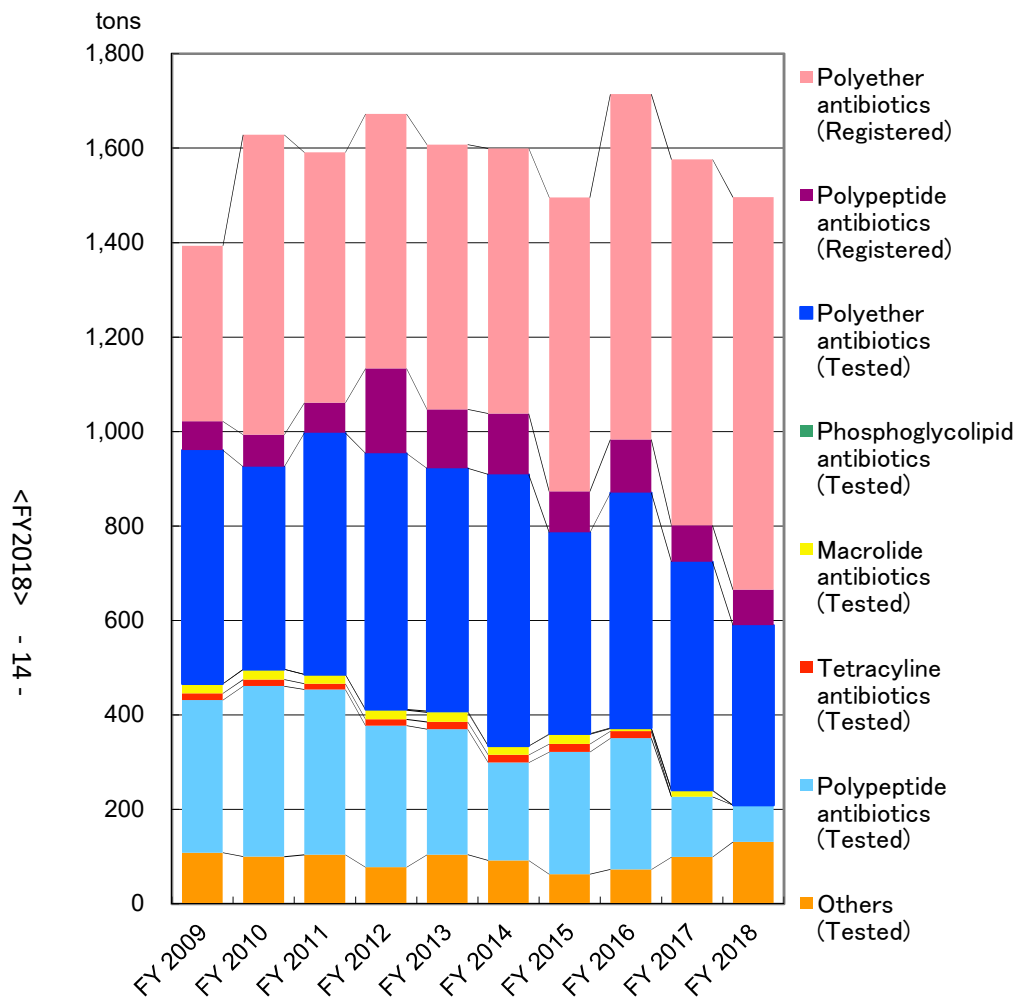


Figure 3: Changes in the official testing-passed quantity and the quantity manufactured by the registered manufacturers of the specified feed additives (Sorted by category of antibiotics)

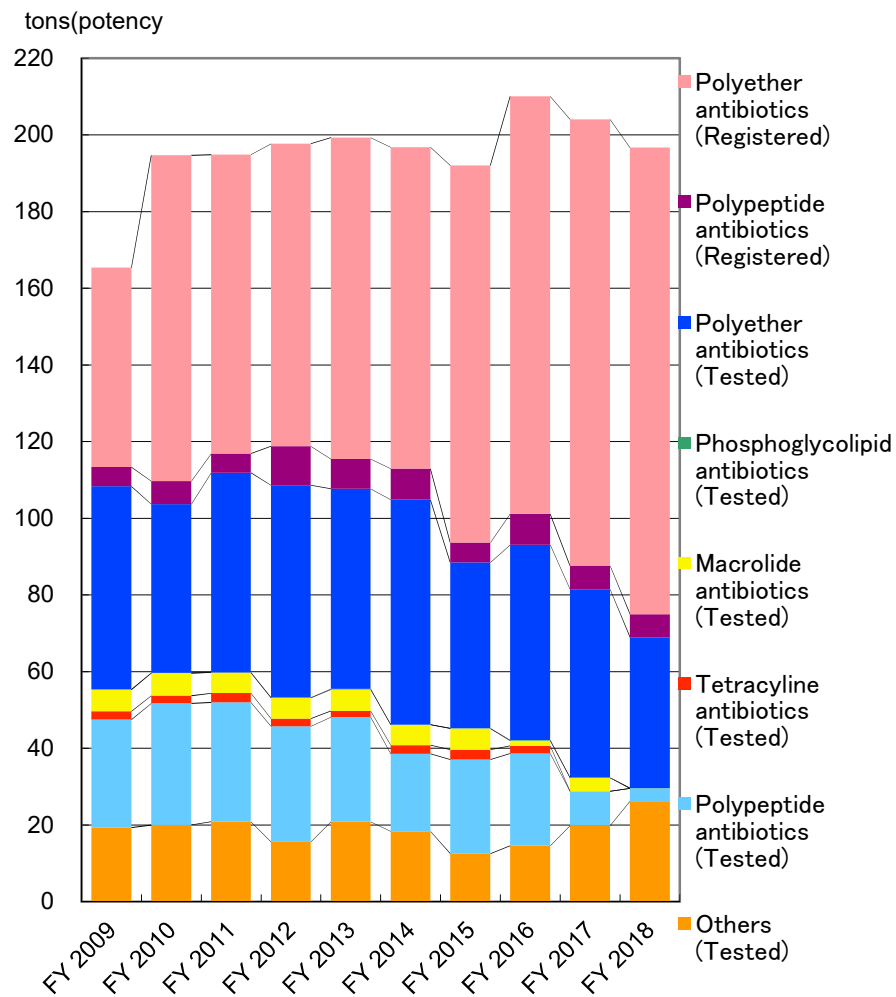


Figure 4: Changes in the official testing-passed quantity and the quantity manufactured by the registered manufacturers of the specified feed additives converted into potency (Sorted by category of antibiotics)