# Results of Official Testing of Specified Feed Additives (FY 2017)

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 Law Concerning Safety Assurance and Quality Improvement of Feeds (Act No. 35 of 1953; hereinafter referred to as "Feed Safety Law") and which are the antibacterial preparations specified in Article 2, item 2 of the Enforcement Order of the Law Concerning 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 Law 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 Law (hereinafter referred to as "registered manufacturers of specified feed additives") on which the indication referred to in Article 16 paragraph 1 of the same Law 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) 2017. The quantity and others of the specified feed additives manufactured by the registered manufacturers of specified feed additives in FY 2017 are also reported. As of the end of March in 2018, 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 2017.

There were seven applicants (eight 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 from raw materials for manufacturing they imported, one of them manufactured preparations from raw materials for manufacturing it imported and subdivided preparations it imported, two of them imported preparations, and the other one manifactured preparations from raw materials for manufacturing it imported and imported preparations.

There were 9 types of specified feed additives, corresponding to 14 brands, passed the official testing in FY 2017 (11 types and 19 brands in the previous FY). The manufacture for manufacturing of raw materials were dependent on foreign countries.

Raw materials for manufacturing or preparations were imported from: 1) China for enramycin (raw material for manufacturing), nosiheptide (raw material for manufacturing), and colistin sulfate※1 (raw material for manufacturing), 2) the UK for avilamycin (preparation), 3) the USA for narasin (preparation) and tylosin phosphate (preparation), 4) Bulgaria for flavophospholipol (preparation) and monensin sodium (raw material for manufacturing), 5) China and Bulgaria for salinomycin sodium (raw material for manufacturing), and 6) Korea for colistin sulfate

(preparation). The number of the import source countries was 5 (6 in the previous FY).
※1 Colistin sulfate was canceled as a specified feed additive on July 1, 2018.

## 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 2015, 2016, and 2017.
In FY 2017, 152 cases were passed the official testing. The official testing-passed quantity and the quantity converted from the actual quantity into potency were 724 tons and 81 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 79.2 %, 83.1 %, and 87.5 %, respectively.
The percentage of the specified feed additives in the total official testing-passed quantity by type was 33.8 %, which was the highest one, for salinomycin sodium (33.3 % in the previous FY), followed in descending order by 31.8 % for narasin (22.7 % in the previous FY), 13.7 % for avilamycin (8.4 % in the previous FY), 8.6 % for nosiheptide (6.9 % in the previous FY), 8.4 % for colistin sulfate (24.4 % in the previous FY). The percentage of them in the total of the quantity converted from the actual quantity into potency was 30.0 % for salinomycin sodium (31.1 % in the previous FY), followed in descending order by 28.3 % for narasin (21.2 % in the previous FY), 24.3 % for avilamycin (15.7 % in the previous FY), 7.5 % for colistin sulfate (22.8 % in the previous FY), and 3.1 % for nosiheptide (2.6 % 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 avilamysin, enramycin, narasin, nosiheptide, and tylosin phosphate increased, while those of colistin sulfate, monensin sodium, and salinomycin sodium decreased.
Alkyltrimethylammonium calcium oxytetracycline and chlortetracycline, which were applied for official testing in the previous FY, were not subjected to the official testing. Zinc bacitracin since FY 2016, lasalocid sodium since FY 2010, virginiamycin※2 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 2017 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 5.
※2 Virginiamycin was canceled as a specified feed additive on July 1, 2018.

## 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 consistent of an antibiotics, a medium component and a fungus compound used for manufacturing is dried.

Table 3 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 2017.

The feed grade of the specified feed additives accounted for; 73.7 % of the total official testing-passed cases (60.4% in the previous FY), 80.2 % of the total official testing-passed quantity (66.6 % in the previous FY), and 83.3 % of the total quantity converted from the actual quantity into potency (70.0 % 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 colistin sulfate, nosiheptide, and salinomycin sodium. In FY 2017, only the refining grade of colistin sulfate and 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 2008 to FY 2017, respectively.

The total of the official testing-passed quantity was significantly decreased in FY 2009 because the manufacturing of some of the specified feed additives were transferred to that by the registered manufacturers of specified feed additives, and it had been showing a tendency to decrease while increasing or decreasing since FY 2009. The quantity converted from the actual quantity into potency also 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 and has hovered at a rate of around 50 % of the total. In FY 2017, the polyether antibiotics accounted for 67 % of the total (57 % in the previous FY), followed by the polypeptide antibiotics, 18 % (32 % in the previous FY).

The quantity converted from the actual quantity into potency was also highest for the polyether antibiotics, which changed at a rate of around 60 % of the total from FY 2007 to FY 2008 and since FY 2009 has remained around 50 %. The polyether antibiotics accounted for 60 % (55 % in the previous FY), followed by the polypeptide antibiotics, at 11 % (26 % in the previous FY).

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

As of the end of March in 2018, 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 colistin sulfate, enramycin, lasalocid sodium, monensin sodium, nosiheptide, and salinomycin sodium. In 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 2017. Moreover, lasalocid sodium which have not undergone the official testing as a specified feed additive in FY 2017 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 2017 was 852 tons (101 % over the previous FY) and the quantity converted from the actual quantity into potency was 123 tons (potency) (105 % over the previous FY).

The descending order of the manufactured quantity in FY 2017 was monensin sodium, salinomycin sodium, lasalocid sodium, enramycin, and colistin sulfate.

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 5 shows the total manufactured quantity and the total quantity converted from the actual quantity into potency, 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 2017 was highest for the polyether antibiotics, 1,258 tons (official testing: 483 tons; registration: 775 tons), which accounted for 79.8 % of the total. The descending order by type was salinomycin sodium (35.5 %), monensin sodium (20.7 %), and narasin (14.6 %). The total quantity converted from the actual quantity into potency by category was also highest for the polyether antibiotics, 165 tons (official testing: 49 tons; registration: 116 tons), which accounted for 81.1 % of the total. The descending order by type was monensin sodium (32.0 %), salinomycin sodium (27.5 %), and narasin (11.3 %).

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 2008 to FY 2017, respectively.

The resgistered manufacturers have manufactured specified feed additives since FY 2007. There has been a great increase in the manufacturing of specified feed additives by the registered manufacturers since the manufacturering of some of the specified feed additives were transferred to that by the registered manufacturers in FY 2009.

Both of the total manufactured quantity and the total quantity converted from the actual quantity into potency was increased in FY 2010. Then, they have hovered at a rate of around 1,600 ton and

200 ton, respectively, since FY 2010. In FY 2017, the percentage of the manufacturing by the registered manufacturers of specified feed additives of the total was 54 % for the manufactured quantity (49 % in the previous FY) and 60 % for the quantity converted from the actual quantity into potency (56 % in the previous FY).

## 7. Summary

The results of the official testing of the specified feed additives and the manufacturing by the registered manufacturers of specified feed additives in FY 2017 were as follows.

(1) There were 9 types of specified feed additives, corresponding to 14 brands, that were applied by 7 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 152 cases, 724 tons, and 81 tons (potency), respectively. Compared to the previous FY, all of them were decreased.

(3) 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 salinomycin sodium, followed by narasin and avilamycin in descending order.

(4) 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 80 % and 83 % of the total respectively.

(5) The quantity 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. 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.

(6) 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.

Table 1: Names of applicants and others for the official testing of the specified feed additives (FY 2017)

| 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 |
| | Miyarisan Pharmaceutical Co., Ltd. | * | Flavophospholipol | ○ | 80 |
| | Nichiku Yakuhin Kogyo Corporation | Kanagawa | Monensin sodium | | 200 |
| | | | Salinomycin sodium | ○ | 100 |
| | Rokku Chemical Products Co., Ltd. | Shizuoka | Enramycin | ○ | 80 |
| | | | Salinomycin sodium | ○ | 100 |
| Kobe | Eli Lilly Japan K. K. / Elanco Japan K.K.※ | * | Avilamycin | ○ | 200 |
| | | | Narasin | ○ | 100 |
| | | | Tylosin phosphate | | 275 |
| | Scientific Feed Laboratory Co., Ltd. | Hyogo | Colistin sulfate | | 100 |
| | | | Nosiheptide | | 40 |
| | | | Tylosin phosphate | | 275 |
| Fukuoka | Japan Nutrition Co., Ltd. | * | Colistin sulfate | | 100 |
| | Kohkin Chemical Co., Ltd. | Kagoshima | Nosiheptide | | 40 |
| | Scientific Feed Laboratory Co., Ltd. | Miyazaki | Colistin sulfate | | 100 |
| Total | 7 business entities | 9 places | 9 Types | | 14 brands |

※On July 1st, 2017, the Animal Health Division of Eli Lily Japan K. K. was incorporated into Elanco Japan K. K..

* 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 2015 to 2017)

| Category | Type of the specified feed additives | FY2015 | | | | | FY 2016 | | | | | FY 2017 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Passed cases | Passed quantity kg | Compo-sition ratio (%) | Quantity converted into potency kg(potency) | Compo-sition ratio (%) | Passed cases | Passed quantity kg | Compo-sition ratio (%) | Quantity converted into potency kg(potency) | Compo-sition ratio (%) | Passed cases | Passed quantity kg | Compo-sition ratio (%) | Quantity converted into potency kg(potency) | Compo-sition ratio (%) |
| Polypeptide antibiotics | Colistin sulfate | 58 | 223,820 | 28.5 | 22,382 | 25.3 | 55 | 212,680 | 24.4 | 21,268 | 22.8 | 15 | 60,800 | 8.4 | 6,080 | 7.5 |
| | Enramycin | 3 | 3,720 | 0.5 | 298 | 0.3 | 2 | 4,820 | 0.6 | 386 | 0.4 | 2 | 4,940 | 0.7 | 395 | 0.5 |
| | Nosiheptide | 6 | 22,000 | 2.8 | 880 | 1.0 | 15 | 60,000 | 6.9 | 2,400 | 2.6 | 20 | 62,200 | 8.6 | 2,488 | 3.1 |
| | Zinc bacitracin | 2 | 9,500 | 1.2 | 950 | 1.1 | – | – | – | – | – | – | – | – | – | – |
| | Subtotal | 69 | 259,040 | 32.9 | 24,510 | 27.7 | 72 | 277,500 | 31.9 | 24,054 | 25.8 | 37 | 127,940 | 17.7 | 8,963 | 11.0 |
| Tetracycline antibiotics | Alkyltrimethylammonium calcium oxytetracycline | 1 | 3,000 | 0.4 | 1,200 | 1.4 | 1 | 1,400 | 0.2 | 560 | 0.6 | – | – | – | – | – |
| | Chlortetracycline | 3 | 14,000 | 1.8 | 1,400 | 1.6 | 3 | 14,000 | 1.6 | 1,400 | 1.5 | – | – | – | – | – |
| | Subtotal | 4 | 17,000 | 2.2 | 2,600 | 2.9 | 4 | 15,400 | 1.8 | 1,960 | 2.1 | 0 | 0 | 0.0 | 0 | 0.0 |
| Macrolide antibiotics | Tylosin phosphate | 4 | 19,994 | 2.5 | 5,498 | 6.2 | 1 | 5,039 | 0.6 | 1,386 | 1.5 | 3 | 12,611 | 1.7 | 3,468 | 4.3 |
| | Subtotal | 4 | 19,994 | 2.5 | 5,498 | 6.2 | 1 | 5,039 | 0.6 | 1,386 | 1.5 | 3 | 12,611 | 1.7 | 3,468 | 4.3 |
| Polysaccharide antibiotics | Flavophospholipol | 1 | 1,250 | 0.2 | 100 | 0.1 | 1 | 1,250 | 0.1 | 100 | 0.1 | 1 | 1,250 | 0.2 | 100 | 0.1 |
| | Subtotal | 1 | 1,250 | 0.2 | 100 | 0.1 | 1 | 1,250 | 0.1 | 100 | 0.1 | 1 | 1,250 | 0.2 | 100 | 0.1 |
| Polyether antibiotics | Lasalocid sodium | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| | Monensin sodium | 3 | 6,080 | 0.8 | 1,216 | 1.4 | 4 | 11,500 | 1.3 | 2,300 | 2.5 | 2 | 8,020 | 1.1 | 1,604 | 2.0 |
| | Narasin | 12 | 131,625 | 16.7 | 13,163 | 14.9 | 18 | 197,500 | 22.7 | 19,750 | 21.2 | 22 | 230,550 | 31.8 | 23,055 | 28.3 |
| | Salinomycin sodium | 71 | 288,780 | 36.7 | 28,878 | 32.6 | 72 | 289,487 | 33.3 | 28,949 | 31.1 | 60 | 244,487 | 33.8 | 24,449 | 30.0 |
| | Semduramicin sodium | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| | Subtotal | 86 | 426,485 | 54.2 | 43,257 | 48.9 | 94 | 498,487 | 57.3 | 50,999 | 54.8 | 84 | 483,057 | 66.7 | 49,108 | 60.3 |
| Others | Avilamycin | 17 | 62,675 | 8.0 | 12,535 | 14.2 | 20 | 72,950 | 8.4 | 14,590 | 15.7 | 27 | 99,050 | 13.7 | 19,810 | 24.3 |
| | Bicozamycin | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| | Efrotomycin | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| | Virginiamycin | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – |
| | Subtotal | 17 | 62,675 | 8.0 | 12,535 | 14.2 | 20 | 72,950 | 8.4 | 14,590 | 15.7 | 27 | 99,050 | 13.7 | 19,810 | 24.3 |
| Total | | 181 | 786,444 | 100.0 | 88,500 | 100.0 | 192 | 870,626 | 100.0 | 93,088 | 100.0 | 152 | 723,908 | 100.0 | 81,449 | 100.0 |
| Ratio to the previous fiscal year (%) | | 101 | 86.5 | | 84.5 | | 106 | 111 | | 105 | | 79.2 | 83.1 | | 87.5 | |

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

Table 3: Number of the official testing-passed cases, official testing-passed quantity, and quantity converted into potency
(Sorted by the grade of the preparation, FY 2017)

| Category | Type of the specified feed additives | Refining grade | | | Feed grade | | |
|---|---|---|---|---|---|---|---|
| | | Passed cases | Passed quantity kg | Quantity convreted into potency kg(potency) | Passed cases | Passed quantity kg | Quantity convreted into potency kg(potency) |
| Polypeptide antibiotics | Colistin sulfate | 15 | 60,800 | 6,080 | – | – | – |
| | Enramycin | | | | 2 | 4,940 | 395 |
| | Nosiheptide | 20 | 62,200 | 2,488 | – | – | – |
| | Zinc bacitracin | | | | – | – | – |
| Tetracycline antibiotics | Alkyltrimethylammonium calcium oxytetracycline | – | – | – | | | |
| | Chlortetracycline | | | | – | – | – |
| Macrolide antibiotics | Tylosin phosphate | 3 | 12,611 | 3,468 | | | |
| Polysaccharide antibiotics | Flavophospholipol | | | | 1 | 1,250 | 100 |
| Polyether antibiotics | Lasalocid sodium | – | – | – | | | |
| | Monensin sodium | 2 | 8,020 | 1,604 | | | |
| | Narasin | | | | 22 | 230,550 | 23,055 |
| | Salinomycin sodium | – | – | – | 60 | 244,487 | 24,449 |
| | Semduramicin sodium | – | – | – | | | |
| Others | Avilamycin | | | | 27 | 99,050 | 19,810 |
| | Bicozamycin | – | – | – | | | |
| | Efrotomycin | – | – | – | | | |
| | Virginiamycin | – | – | – | | | |
| Total | | 40 | 143,631 | 13,640 | 112 | 580,277 | 67,809 |
| Proportion (%) | | 26.3 | 19.8 | 16.7 | 73.7 | 80.2 | 83.3 |

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

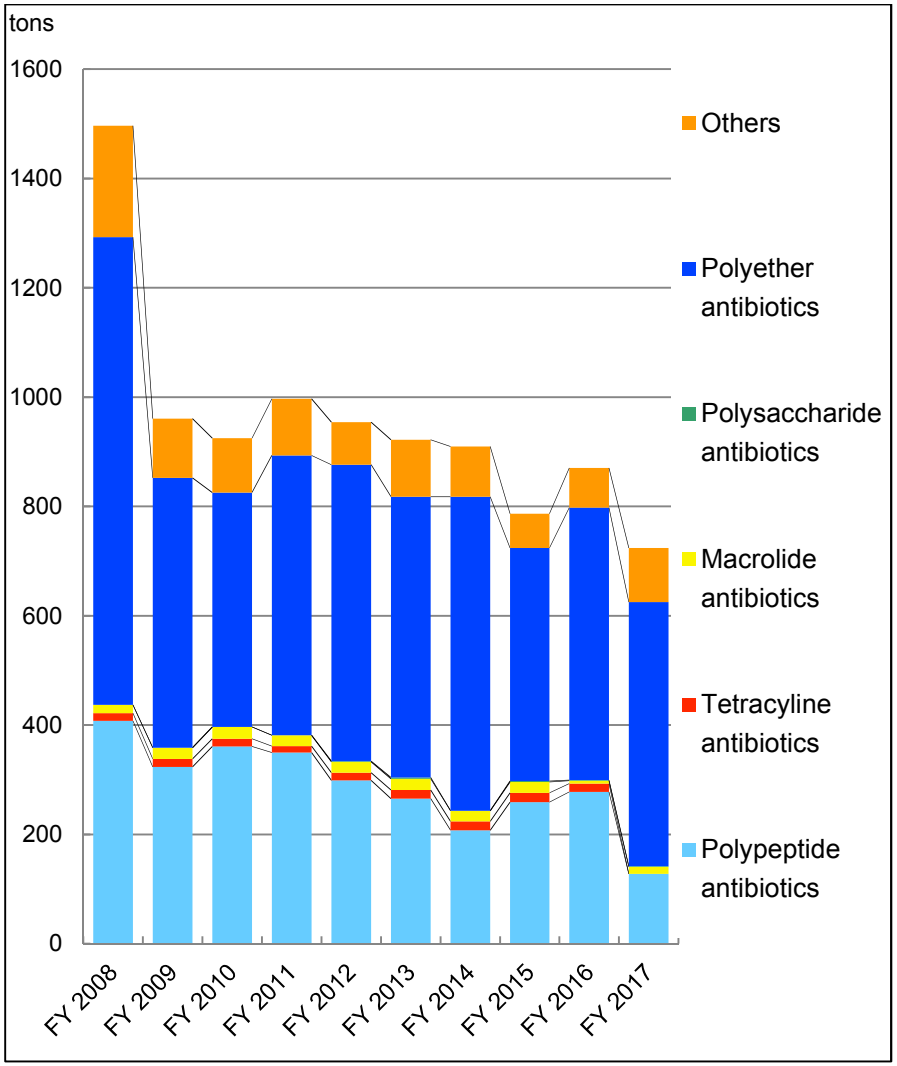


Figure 1: Changes in the official testing-passed quantity of the specified feed additives (Sorted by category of antibiotics)

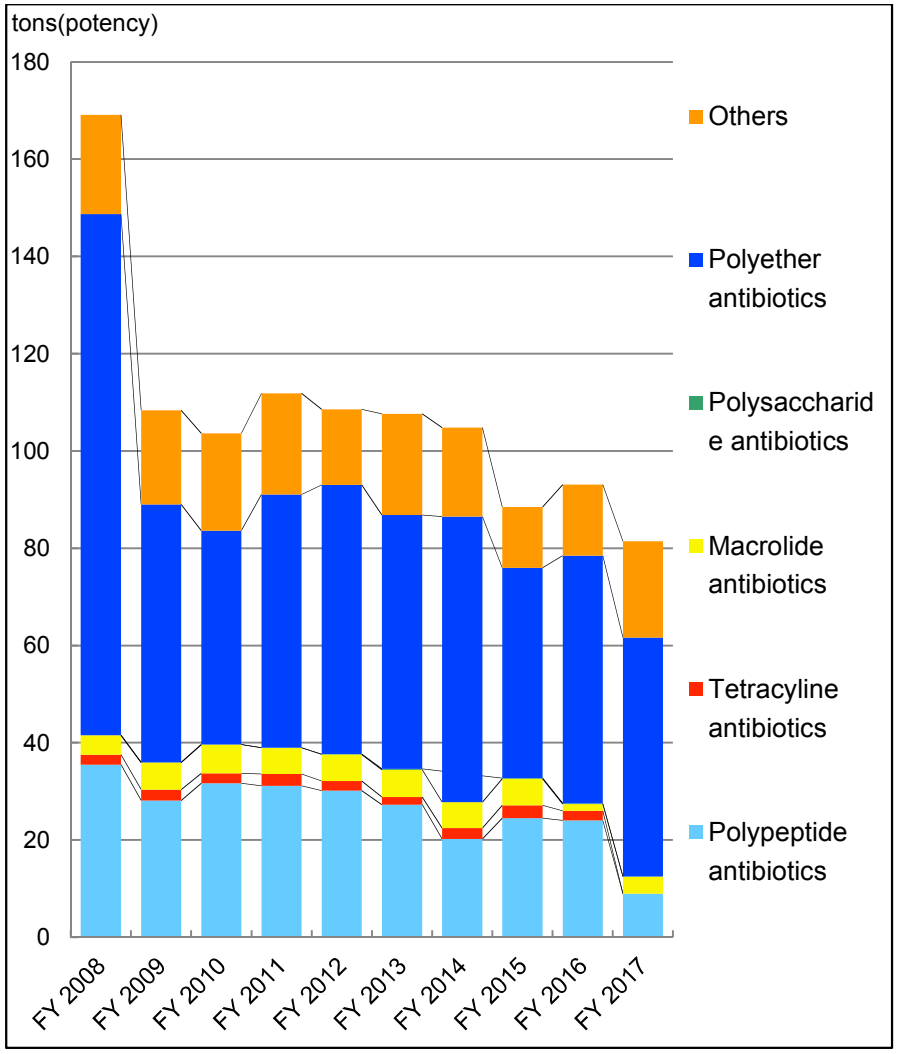


Figure 2: Changes in the official testing-passed quantity of the specified feed additives converted into potency (Sorted by category of antibiotics)

Table 4: Manufactured quantity by the registered manufacturers of specified feed additives (FY 2016 and 2017)

| Category | Type of the specified feed additives | FY 2016 | | FY 2017 | |
|---|---|---|---|---|---|
| | | Manufactured quantity* | Quantity converted into potency | Manufactured quantity* | Quantity converted into potency |
| | | kg | kg(potency) | kg | kg(potency) |
| Polypeptide antibiotics | Colistin sulfate | 8,120 | 812 | 1,120 | 112 |
| | Enramycin | 76,680 | 6,134 | 76,300 | 6,104 |
| | Nosiheptide | 27,720 | 1,109 | — | — |
| | Subtotal | 112,520 | 8,055 | 77,420 | 6,216 |
| Polyether antibiotics | Lasalocid sodium | 117,060 | 17,559 | 140,280 | 21,042 |
| | Monensin sodium | 299,560 | 59,912 | 318,800 | 63,760 |
| | Salinomycin sodium | 314,240 | 31,424 | 315,780 | 31,578 |
| | Subtotal | 730,860 | 108,895 | 774,860 | 116,380 |
| Total | | 843,380 | 116,950 | 852,280 | 122,596 |
| Ratio to the previous fiscal year (%) | | 119 | 113 | 101 | 105 |

* Hearing from each registered manufacturer of specified feed additives.

Table 5: Total manufactured quantity of the specified feed additives (FY 2017)

| Category | Type of specified feed additives | Total quantity *1 (kg) | Composition ratio (%) | Total quantity converted into potency *2 (kg(potency)) | Composition ratio (%) |
|---|---|---|---|---|---|
| Polypeptide antibiotics | Colistin sulfate | 61,920 | 3.9 | 6,192 | 3.0 |
| | Enramycin | 81,240 | 5.2 | 6,499 | 3.2 |
| | Nosiheptide | 62,200 | 3.9 | 2,488 | 1.2 |
| | Zinc bacitracin | – | – | – | – |
| | Subtotal | 205,360 | 13.0 | 15,179 | 7.4 |
| Tetracycline antibiotics | Alkyltrimethylammonium calcium oxytetracycline | – | – | – | – |
| | Chlortetracycline | – | – | – | – |
| | Subtotal | 0 | 0.0 | 0 | 0.0 |
| Macrolide antibiotics | Tylosin phosphate | 12,611 | 0.8 | 3,468 | 1.7 |
| | Subtotal | 12,611 | 0.8 | 3,468 | 1.7 |
| Polysaccharide antibiotics | Flavophospholipol | 1,250 | 0.1 | 100 | 0.0 |
| | Subtotal | 1,250 | 0.1 | 100 | 0.0 |
| Polyether antibiotics | Lasalocid sodium | 140,280 | 8.9 | 21,042 | 10.3 |
| | Monensin sodium | 326,820 | 20.7 | 65,364 | 32.0 |
| | Narasin | 230,550 | 14.6 | 23,055 | 11.3 |
| | Salinomycin sodium | 560,267 | 35.5 | 56,027 | 27.5 |
| | Semduramicin sodium | – | – | – | – |
| | Subtotal | 1,257,917 | 79.8 | 165,488 | 81.1 |
| Others | Avilamycin | 99,050 | 6.3 | 19,810 | 9.7 |
| | Bicozamycin | – | – | – | – |
| | Efrotomycin | – | – | – | – |
| | Virginiamycin | – | – | – | – |
| | Subtotal | 99,050 | 6.3 | 19,810 | 9.7 |
| Total | | 1,576,188 | 100.0 | 204,045 | 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

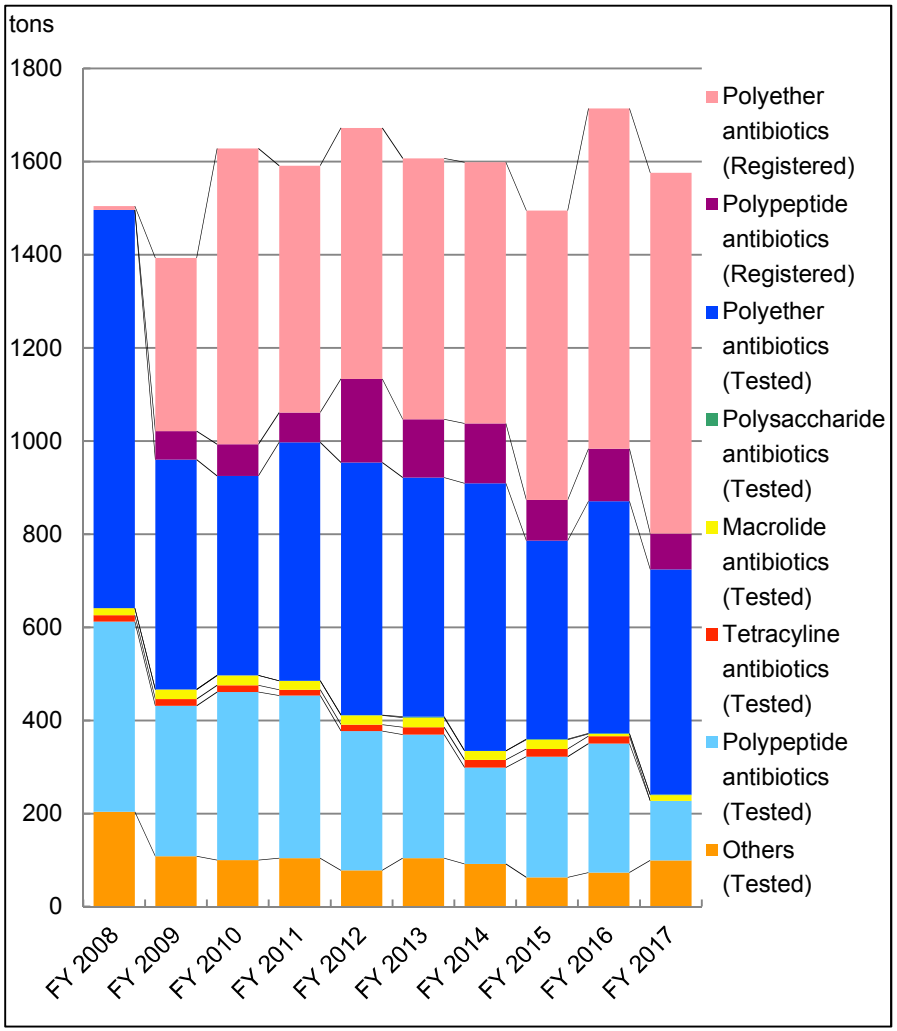


Figure 3: Changes in the official testing-passed quantity and the quantity manufactured by the registered manufacturers of the specified feed additives (Sorted by category of antibiotics)

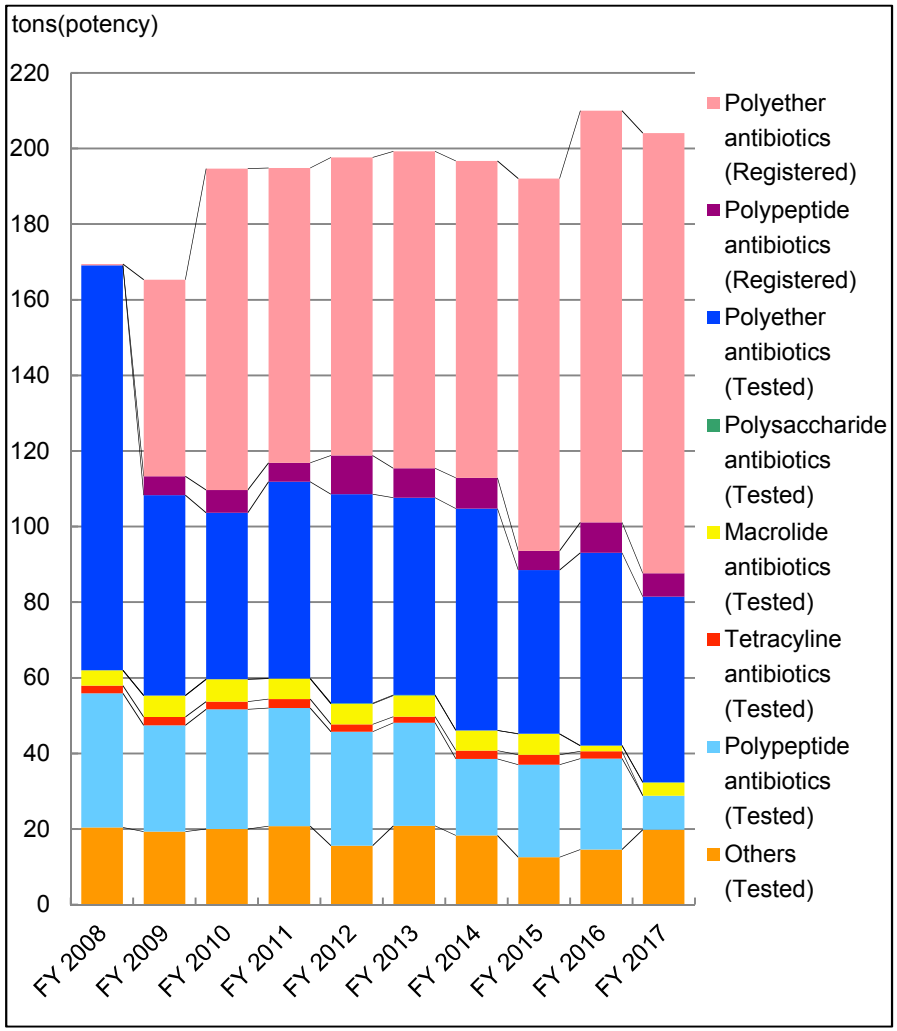


Figure 4: Changes in the official testing-passed quantity and the quantity manufactured by the registered manufacturers of the specified feed additives converted into potency (Sorted by category of antibiotics)