MEMBER STATE NARRATIVE

1. General information on any changes in trends observed since the previous reporting period.

Compared to 2016 (534.854 animals used), there is an increase of 1.54% in the number of animals used for scientific purposes in 2017 (543.074 animals used) but still a decrease of 3.29% compared to 2015 (561.551 animals used). The increase in 2016 is the result of an increased use of poultry merely in translational and applied research (animal diseases and disorders) and for forensic enquiries.

Number of use in 2017	Number of use in 2016	Number of use in 2015
543074	534854	561551

Since 2015 the numbers of re-used animals continues to decline: 3.74% of all uses in 2015, 1.52% in 2016 and 0.93% in 2017.

Re-Use	Number of use in 2017	Number of use in 2016	Number of use in 2015
No	538043	526723	540571
Yes	5031	8131	20980
Total uses	**543074**	**534854**	**561551**

There is a significant increase in the use of birds (108.94% compared with the use of birds in 2015). This is due to an increase in the area of Animal Diseases and Disorders and Regulatory use and Routine production (Legislation on medicinal products for veterinary use and their residues). The fish decreased with 48,73% compared to 2015. No apparent reason was noted.

Species	Number of use in 2017	Number of use in 2016	Number of use in 2015
Mammals	442378	440501	435333
Birds	46812	30734	22405
Fish	52462	62221	102330
Amphibians	1241	1226	1350
Reptiles	181	172	133
Cephalopods	0	0	0
Total uses	**543074**	**534854**	**561551**

In the mammals the use of rabbits and Artiodactyla increased. The use of rabbits has increased in the Legislation on medicinal products for human use area. This is reflected in an increase of 33.68% compared to 2015. The use of Artiodactyla augmented (61.53% more Artiodactyla used compared to 2015). This is due to an increase in Basic research (this was caused by zootechnics (selection)), Translational and applied research (Animal Diseases and Disorders) and Protection of the natural environment in the interests of the health or welfare of human beings or animals. The use of all other species remained unchanged.

Mammals	Number of use in 2017	Number of use in 2016	Number of use in 2015
Rodents	374857	384785	385298
Rabbits	57888	48036	43304
Carnivores	1943	1665	1937
Equidae	234	231	115
Artiodactyla	7272	5591	4502
Non-human primates	44	40	46
Other mammals	140	153	131
Total uses	**442378**	**440501**	**435333**

2. Information on significant increase or decrease in use animals in any of the specific areas and analysis of the reasons thereof.

Between 2015 and 2017, basic research diminished with 11,79%. This was in particular due to decreases in the area of Musculoskeletal System, Urogenital/Reproductive System, Multisystemic research, Endocrine System/Metabolism and Respiratory System. However, the research in the domain of the Immune System and Oncology significantly increased between 2015 and 2017.
During the same time period Translational and applied research augmented with 23.77%. We noted a significant increase in Animal Welfare (3,525 animals in 2017 compared to 165 in 2015), Animal Diseases and Disorders, Human Endocrine/Metabolism Disorders, Human Sensory Organ Disorders (skin, eyes and ears), Human Nervous and Mental Disorders and Non-regulatory toxicology and ecotoxicology. A decrease was noted in Diagnosis of diseases and Human Infectious Disorders.

3. Information on any changes in trends in actual severities and analysis of the reasons thereof.

Within the actual severities classification we note that the category "severe" decreased from 18.10% in 2016 to 15.61% in 2017.
This is due to a diminution of quality control research (incl. batch safety and potency testing). This percentage is still higher than the European average of 10% but in Belgium a lot of basic research was done with in particular research in the field of Oncology, Immune system and Nervous system. Another important area in the research concerns Translational and applied research with again Human Nervous and Mental Disorders, Human Infectious Disorders and Human Cancer as the most important domains. Since, according to the legislation, tumours leading to metastases, tumours that lead to cachexia, invasive bone tumours, ulcerating tumours, loss of immunity, etc. (research that is often done in Belgium) should be classified as "severe", this can lead to an increase in this category.

4. Particular efforts to promote the principle of replacement, reduction and refinement and its impacts on statistics if any.

- Funding of research projects for the development of alternative toxicity tests:
    - Thyroid hormone disruptors: There is a wide-variety of environmental contaminants that have the potential to cause thyroid hormone disruption[1].

[1] http://www.oecd.org/chemicalsafety/oecd-encourages-development-of-non-animal-test-methods-for-detection-of-thyroid-disruptors.htm

Exposure to specific environmental toxins, including polychlorinated biphenyls, dioxins, phthalates, polybrominated diphenyl ethers (PBDEs), and other halogenated compounds, has been shown to interfere with the production, transportation, and/or metabolism of thyroid hormones by a variety of mechanisms. Some chemicals, with structural similarity to thyroid hormones, have been shown to bind to thyroid receptors with both agonist and antagonist effects on thyroid hormone signalling. Thyroid hormone disruption can therefore cause severe adverse effects on *e.g*. brain development, growth and metabolism.

Validated and internationally recognised tests methods are essential in assessing the potential of chemicals to interact with the hormonal system and cause adverse effects. Non-animal test methods are needed for efficient testing and screening of substances. In 2014, OECD published a scoping document on *in vitro* and *ex vivo* assays for the identification of modulators of thyroid hormone signalling (OECD, 2014). Several key biological mechanisms of thyroid system disruption were reviewed and the corresponding methods evaluated for their state of readiness as candidates to enter the validation process. Relevant *in vitro* and *ex vivo* methods were identified and recommendations were given for their development/use. Eighteen methods were reported that cover the possible sites of action in the hypothalamic-pituitary-thyroid (HPT) axis. The research is carried out by EU-Netval facilities. By funding this research we enable our EU NETVAL facility to take part of this study.

- Differentiation of human skin-derived stem cells towards hepatic cells: new source for the "in vitro study" of liver toxicity of drugs. Liver toxicity is one of the most important research elements in drug development. In addition, liver toxicity is the main reason for withdrawing medicines from the market. Presently, pre-clinical drug safety tests are carried out by "in vivo studies", i.e. studies on laboratory animals. In addition to the ethical concerns and the high costs associated with these in vivo studies, it is important to note the relatively low correlation between the results of animals on humans (less than 60% of the results of tests on animals apply to humans). By funding the project, we contribute to research that will lead in the long term to the reduction of the number of laboratory animals that are used in the context of drug development.

- Collaboration with the university board to promote the development and promotion of alternative methods (for example, WALCOPA project in Wallonia).

- Collaboration between the different regions and other member states to promote the 3R principle.

- Establishment of RE-place: The RE-Place project will create a database that brings together all existing expertise on alternative methods for animal testing in the Flemish and Brussels regions. The RE-Place website will be expanded in a next phase into a platform where researchers can find more information about alternative methods for animal testing and share their research methodology with the rest of the research community. By charting and making known generally the available and developing alternative methods for animal testing, not only researchers but also the general public and the political world will be better informed about the expertise in their own region. In the long term, all collected information will be integrated at European level.

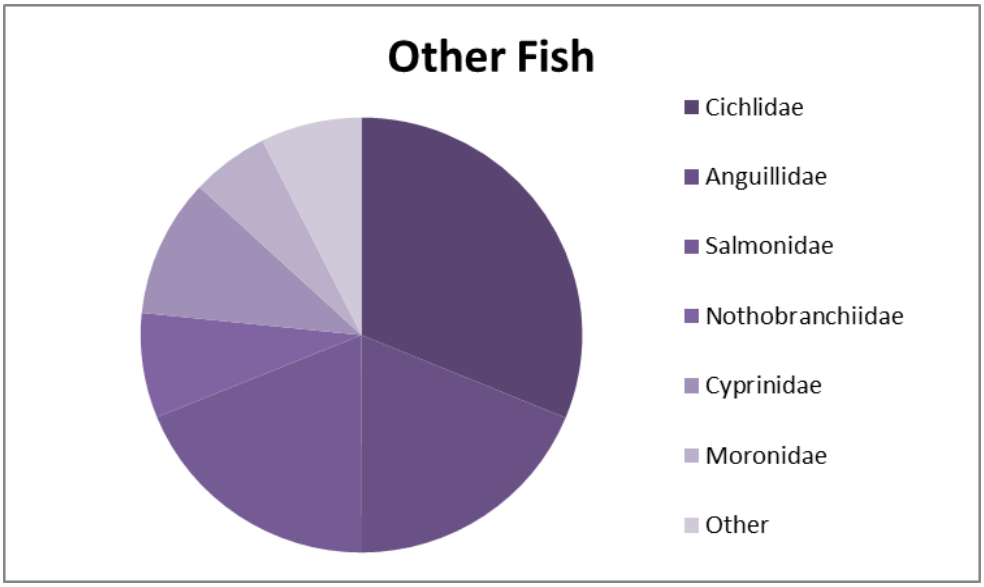
5. Further breakdown on the use of "other" categories if a significant proportion of animal use is reported under this category.

1. Other fish

45.80% of the fishes are reported under the “other” category.
They are mostly Cichlidae (*Oreochromis niloticus*) (31.21% of other fish), Salmonidae (*Salmo salar and Oncorhynchus mykiss*) (18.85% of other fish), Anguillidae (*Anguilla anguilla*) (18.75% of other fish), Cyprinidae (*Cyprinus carpio carpio and Cyprinus carpio*) (10.27% of other fish), Nothobranchiidae (*Nothobranchius furzeri*) (7.79% of other fish) and Moronidae (*Dicentrarchus labrax*) (5.70% of other fish).

Other Fish	Number of uses
Oreochromis niloticus	7499
Anguilla anguilla	4506
Salmo salar	2012
Oncorhynchus mykiss	2522
Nothobranchius furzeri	1871
Cyprinus carpio carpio	1814
Dicentrarchus labrax	1370
Cyprinus carpio	654
Scortum barcoo	648
Poecilia reticulata	300
Pleuronectes platessa	229
Lota lota	144
Gasterosteus aculeatus	82
Clarias gariepinus	50
Kryptolebias marmoratus	50
Limanda limanda	48
Gadus morhua	47
Pseudotropheus saulosi	25
Synodontis grandiops	20

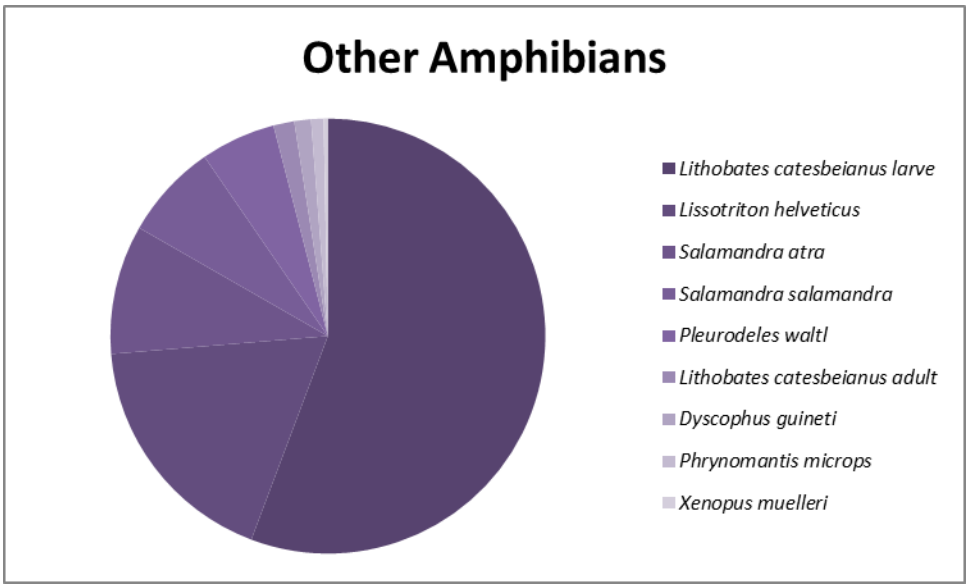
Microsynodontis batesii	12
Myloplus schomburgkii	8
Catoprion mento	7
Metynnis hypsauchen	7
Pseudotropheus estherae	7
Pygopristis denticulata	7
Serrasalmus spilopleura	7
Ophthalmotilapia ventralis	6
Synodontis nigriventris	6
Maylandia zebra	5
Mochokiella paynei	5
Pygocentrus cariba	5
Pygocentrus nattereri	5
Pygocentrus piraya	5
Botia morleti	3
Myloplus rubripinnis	3
Pantodon buchholzi	3
Piaractus brachypomus	3
Synodontis acanthomias	3
Synodontis brichardi	3
Synodontis contractus	3
Synodontis elongatus	3
Synodontis flavitaeniatus	3
Synodontis lucipinnis	3
Synodontis notatus	3
Botia modesta	2
Serrasalmus manueli	2
Colossoma macropomum	1
Malapterurus electricus	1
Metynnis lippincottianus	1
Ophthalmotilapia nasuta	1
Platydoras hancockii	1
Synodontis eupterus	1
Synodontis schall	1
Total uses:	**24027**



2. Other amphibians

26.03% of the amphibians are reported under the "other" category.
They are mostly Ranidae (*Lithobates catesbeianus larva + adult*) (57.27% of other amphibians) and Salamandridae (in order of importance: *Lissotriton helveticus, Salamandra atra, Salamandra salamandra, Pleurodeles waltl*) (40.24% of other amphibians).

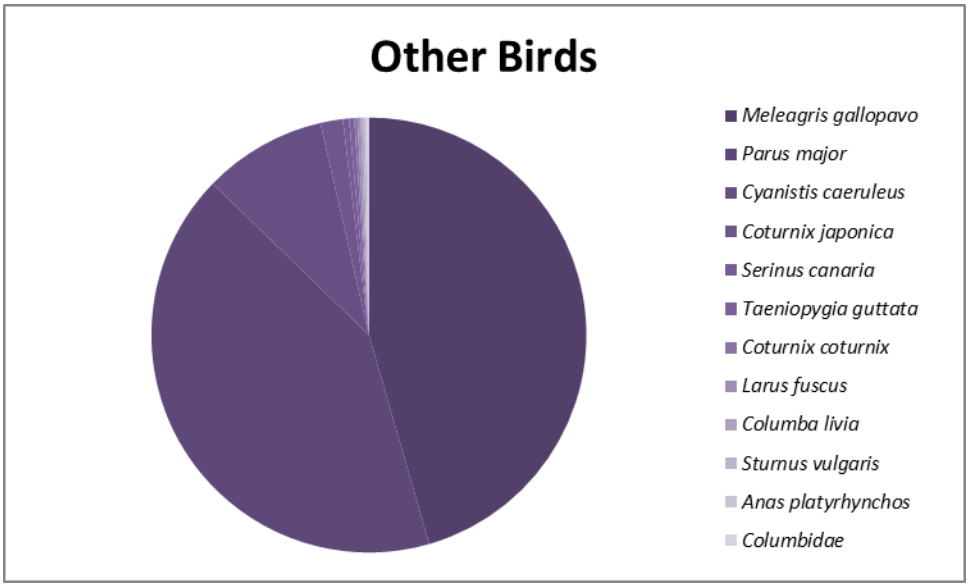
Other Amphibians	Number of uses
Lithobates catesbeianus larve	180
Lissotriton helveticus	58
Salamandra atra	31
Salamandra salamandra	23
Pleurodeles waltl	18
Lithobates catesbeianus adult	5
Dyscophus guineti	4
Phrynomantis microps	3
Xenopus muelleri	1
Total uses:	**323**



3. Other birds

15.25% of the birds are reported under the "other" category.
They are mostly Paridae (*Parus major and Cyanistis caeruleus*) (50.89% of other birds) and Phasianidae (*Meleagris gallopavo, Coturnix japonica, Coturnix coturnix*) (47.42% of other birds).
The other birds are members of Fringillidae (*Serinus canaria*), Estrildidae (*Taeniopygia guttata*), Laridae (*Larus fuscus*), Columbidae (Columba livia), Sturnidae (Sturnus vulgaris) and the Anatidae (*Anas platyrhynchos*).

Other Birds	Number of uses
Meleagris gallopavo	3249
Parus major	2979
Cyanistis caeruleus	654
Coturnix japonica	119
Serinus canaria	33
Taeniopygia guttata	27
Coturnix coturnix	17
Larus fuscus	17
Columba livia	14
Sturnus vulgaris	13
Anas platyrhynchos	8
Columbidae	8
Total uses:	**7138**



6. Details on cases where the 'severe' classification is exceeded, whether pre-authorised or not, covering the species, numbers, whether prior exemption was authorised, the details of the use and the reasons why 'severe' classification was exceeded.

As in previous years, there were no cases in which the ‘severe’ classification was exceeded.