

Chapter 2.5

REPORTS OF *SALMONELLA* IN POULTRY

Poultry are subject to a number of statutory and voluntary testing programmes for *Salmonella*. During the period referred to, the Poultry Breeding Flocks and Hatcheries Order (PBFHO) 1993 applied and it required regular monitoring of breeding flocks throughout their lifespan by bacteriological sampling of composite faeces at farms and testing of progeny at hatcheries, following standardised sampling protocols and laboratory methods. In addition to the statutory scheme, most commercial companies operate additional voluntary testing schemes, particularly involving broiler production and table egg laying flocks. This is reflected in the data presented in Table 1 which show that, in contrast to other species, the largest number of reports of *Salmonella* from poultry are the result of voluntary surveillance activity rather than the investigation of clinical disease. Most incidents in poultry are therefore not associated with clinical disease but with identification of subclinical carriage of *Salmonella*.

The numbers of incidents and isolations of *Salmonella* reported from poultry species are shown at Tables 39, 40, 49, 50, 55, 56, 60 and 61. The number of poultry diagnostic submissions to VLA/SAC laboratories increased by 59% in 2006 (3,047 submissions) compared to 2005 (1,916 submissions). These figures include diagnostic submissions from wild ducks and geese.

Vaccines against *Salmonella* Enteritidis and *S. Typhimurium* are very widely used in the commercial layer sector and are also used in parent broiler breeders. Their use is considered to have contributed to the control of *Salmonella* in poultry flocks.

The Zoonoses Regulation 2160/2003 came into force on the 21st December 2003 and requires that Member States put into place control plans for the monitoring and reduction of zoonoses at farm level, once the target to reduce the pathogen or infectious agent has been agreed. In order to set targets, standardised prevalence surveys are carried out in each Member State to establish the baseline level of the specified zoonotic agent in different food animal species. *Salmonella* prevalence surveys were completed in holdings of commercial egg-laying flocks in September 2005 and in holdings of broiler flocks in September 2006. Five pairs of boot swabs were collected from one flock on each of 382 randomly selected holdings of broiler flocks with at least 5000 birds on the holding. The holding-level prevalence of *Salmonella*, weighted by holding size, was estimated at 10.7% (CI_{95%} 8.1 – 13.1%). Of the five serovars given top priority by the EU because of their public health

importance, *S. Enteritidis*, *S. Hadar* and *S. Infantis* were not isolated from any holdings. *S. Typhimurium* DT104 and *S. Virchow* PT2 were each found on a single holding. The serovar most commonly found on UK broiler holdings was *S. Ohio* (2.4%). A full report of the survey in the UK and other Member States is available on the EFSA website (¹http://www.efsa.europa.eu/en/science/monitoring_zoonoses/reports/zo_on_report_finbroilers.html). In the report, the data have been adjusted to estimate the *Salmonella* flock prevalence rather than the holding prevalence to give a *Salmonella* prevalence in UK broiler flocks of 8.2%. A mandatory 12-month survey of meat (fattening) turkey holdings for *Salmonella* began on 1 October 2006. The United Kingdom is required to sample one flock from each of 318 holdings over a 12-month period as per the agreed protocol to be implemented in all Member States (2006/662/EC: Commission Decision). A total of 173 flocks will be drawn from holdings with 500 to 4,999 fattening turkeys and 145 flocks will be selected from holdings with 5,000 or more fattening turkeys. Five boot swabs will be taken from each flock within three weeks of depopulation. The samples taken in Great Britain are tested at the VLA Weybridge. The UK results are passed to Defra for submission to the European Commission for further analysis to establish a baseline for the prevalence of *Salmonella* in meat (fattening) turkey holdings in the EU. In addition to the random survey of meat turkey flocks, all laying flocks within all breeder turkey holdings with 250 or more breeding birds have to be sampled for *Salmonella* within nine weeks of depopulation. In the UK, there are around 25 turkey breeder holdings to be sampled with an average of four flocks per holding. Samples are tested at VLA Weybridge and the results sent to Defra for submission to the EC.

Chickens

There were 140.4 million chickens in Great Britain reported in the June 2006 census, compared with 143.5 million in 2005 (a decrease of 2%). Table 39 shows the number of reported incidents of *Salmonella* in chickens in 2006 (302), which was 35% lower than in 2005 (463). The majority of incidents arose from voluntary surveillance of broiler flocks by the poultry industry. Less than 4% of *Salmonella* reports in chickens are associated with clinical disease investigation.

Approximately 27,775 *Salmonella* tests were performed under the statutory monitoring requirements of the PBFHO 1993 and 139 (0.5%) were positive for *Salmonella*; this compares to 0.44% positive in 2005. The organism was isolated most frequently from day old chick carcasses and was only isolated from 10 out of 2203 composite faeces samples (0.45%) collected when the chicks were four weeks of age.

Only 29 incidents were reported as a result of this statutory monitoring of breeding flocks in 2006 (Table 1).

***Salmonella* Enteritidis**

Numbers of reports of this serovar had been declining since 1997, except for a small increase in reports in 2003 (Table 39). In 2006 eleven incidents were reported; decreasing from 19 in 2005. These represented 3.6% of *Salmonella* incidents in chickens. The reported phage types were: PT1 (seven incidents) PT4 (two incidents), and single incident reports of PTs 6 and 28. Phage type PT28 has been previously reported from chickens in 1994 as the result of routine surveillance. There were four incidents in broiler flocks (three incidents of PT1 and a single incident of PT4) and three incidents in egg layer flocks (single incidents of PT4, PT6 and PT28). There were four reports of phage type PT1 in broiler breeding flocks. Three of these reports originated from the progeny of three different supply flocks which were sampled in the same hatchery. Following investigation visits in all three supply flocks, infection with *S. Enteritidis* PT1 was confirmed in a single breeding holding. This indicated that the three original reports were most probably the result of cross-contamination of meconium samples in the hatchery. The supply flock with the confirmed infection was depopulated. The fourth report also originated from the progeny of a broiler breeder flock, sampled in a hatchery different to the one that gave rise to the previous three reports. During the advisory and investigation visit *S. Enteritidis* PT1 was detected in all five pairs of boot swabs and two out of five dust samples taken from one of the houses on the premises, while all samples from the other houses gave negative results. All houses on the site were depopulated, followed by cleaning and disinfection.

***Salmonella* Typhimurium**

There were six reported incidents of *Salmonella* Typhimurium in 2006. Reports of *S. Typhimurium* represented 2% of all reports from chickens. The proportion of this serovar of all incident reports in chickens has remained at similar levels in recent years (Fig 36). The most common definitive types were DT104 and DT40 (2 incidents of each). Other definitive types reported were single incidents of DT195 and UNTY, a culture which does not react with any of the phages in the typing scheme. Both reports of DT104 in 2006 were from backyard flocks, as was a single report of DT40, a serovar usually associated with wild birds. DT40 was also reported from a small layer breeder flock of less than 200 birds of free-range adult birds of mixed breeds ('fancy birds').

An investigation visit was made to the premises and advice was given on hygiene, management and zoonoses control. The report of definitive type DT195 was from a broiler flock. This strain has not been reported in chickens under routine surveillance since 1994.

Other serovars

The most common serovar reported from chickens in 2006 was *S. Livingstone* (53 incidents). The relative proportion of this serovar has decreased from 27.4% in 2005 to 17.5% in 2006. This decrease may be associated with the change in which environmental isolations from hatcheries were reported in 2006 in comparison with previous years. These are now reported as isolations but not incidents unless associated with a specific parent flock. However, both the number of incidents and the number of isolations decreased in 2006. In addition there were 29 reports of *S. 6,7:-:-* which may be related to *S. Livingstone* (these are not shown separately in Table 41, but are included under “structure only”).

The proportion of reports of *S. Senftenberg* increased in 2006 (12.3% of all incidents) compared to 2005 (10.8% of all incidents); this remains the second most commonly reported serovar. Other common serovars were *S. Ohio* (11.9% of all incidents), *S. Kedougou* (9.6% of all incidents) and *S. Thompson* (4.3% of all incidents).

The number of reports of *S. Virchow* decreased from 13 in 2005 to four in 2006. Of these four incidents, the most common phage type was PT2 (three incidents), while there was also a single incident of PT26. This phage type was last reported from chickens in 2004. All of these incidents were reported from broiler flocks.

There were five reports of *S. Hadar* from chickens in 2006. This serovar was last reported from chickens in 2003. Of 5 incidents, the most common phage type was PT22 (three incidents; all were reported from broiler flocks) and there were also single reports of PT47 (reported from a broiler flock) and PT10 (reported from a broiler breeding flock). The latter strain was reported from a broiler breeding flock following isolation from environmental samples taken from one of the houses on the premises as part of private routine monitoring for *Salmonella*. Following this report the premises were visited and an epidemiological investigation was carried out, however the source of the infection was not established. The first isolation of this strain was made when the birds were still immature and all previous samples had been negative. In 2006 there were two reports of *S. Infantis*, one from a layer flock and one from a broiler flock, while there were six incidents of *S. Infantis* from

chickens in 2005. There was one isolation of *S. Pullorum* reported in 2006. Full information on the phage type results of this culture was unavailable at the time of data collation. This serovar was last reported from chickens in 2004. Two reports of *S. Newport* were received in 2006, the same as in 2005, one from a layer and one from a broiler flock. None of these reports was of the USA-type multiple antibiotic resistant *S. Newport* strain (*S. Newport* resistant to ACSSuT or ASSuT, with or without additional resistances) and there was no evidence of resistance to third generation cephalosporins.

There was a decrease in the number reports of *S. Liverpool* from 16 in 2005 to two in 2006. *Salmonella* Ealing, *S. Lille* and *S. New Brunswick* have not been reported from chickens since 2001. New *Salmonella* serovars reported in 2006 were: *Salmonella* Saint Paul (last reported in 2004), *S. Hadar*, *S. Stourbridge* and *S. Worthington* (all of these were previously reported in 2003), *S. Taksony* (last reported in 2002) *S. Cerro* (last reported in 1999) and *S. Schwarzengrund* (last reported in 1992).

Salmonella Oskarshamn was isolated from a broiler flock in 2006, the first time that this serovar has been reported in either livestock or animal feedingstuffs since recording began.

S. Gallinarum was identified in a commercial cage layer flock and in a small backyard flock in 2005. These were the first reports of *S. Gallinarum* in Great Britain since 1986. A third outbreak, geographically close to the original one, was identified in a commercial cage layer flock in spring of 2006. An advisory and investigation farm visit was made to the premises involved to collect information on the management, biosecurity and hygiene of the premises. In autumn of 2006 a further outbreak of fowl typhoid was confirmed in a small free range backyard flock of layer chickens which experienced mortality. This was the fourth site on which the disease has been confirmed in GB over the last two years. There was no confirmed connection between this outbreak and the previous ones. The outbreak was confirmed by post-mortem examination and tissue sampling of the affected birds, serological investigation of live birds and isolation of the organism from red mites obtained from the infected premises.

National trends for *Salmonella* in chickens are difficult to interpret since a large proportion of reports of a specific serovar may originate from a small number of large integrated companies. Most incidents were identified by voluntary environmental sampling of broiler farms when the birds were two to five weeks of age.

In 2006 there were three *Salmonella* incidents of non-GB origin reported from domestic fowl. One of these was a report of *S. Enteritidis* PT1 and two were reports of *S. Senftenberg*. All were the result of progeny monitoring in Great Britain where the parent flocks were outside GB. These reports are included in the tables and figures of this publication.

In 2006 the following *Salmonella* serovars were reported from chickens for reasons other than routine surveillance, for example through research projects, but were not reported through routine surveillance: *S. Enteritidis* phage types PT7, PT5a, PT35, PT24, PT29, PT5c, PT21b, PT6a, PT23, PT8, PT4b, PT9b, UNTY and NOPT, *S. Typhimurium* definitive types DT49, DT193, DT193a and DT7, *S. Cubana*, *S. Tennessee*, *S. Derby*, *S. Oslo*, *S. Ouakam*, *S. Yoruba*, *S. London*, *S. Rissen* and *S. Orion*. These reports are not included in the tabulations of this publication.

Turkeys

Table 49 shows a decrease (30%) in the number of incidents of *Salmonella* reported in turkey flocks in 2006. 18% of reports were associated with investigations of clinical disease, while 68% arose through voluntary surveillance activities. The most common serovar reported in 2006 was *S. Typhimurium*. Both the number (37 reports) and the relative proportion (21.6% of incidents) of this serovar has increased in 2006, compared with 2005 (22 reports - 9.1% of incidents). The rise in *S. Typhimurium* in turkeys in 2006 was mainly due to an increase in reports in the 1st half of the year, as the result of voluntary environmental monitoring at a single company. Thirty-two of the 37 incidents (86%) involved DT104. There were also single incident reports of U302, DT8, DT120 and DT193. Definitive type DT193 was last reported from turkeys in 2001. DT8, a *S. Typhimurium* definitive type usually associated with ducks and geese, had been previously reported from turkeys in 1997, while DT120 had been previously reported from turkeys in 2004.

There were no reports of *S. Enteritidis* from turkey flocks in 2006, or in 2005. In 2004 there was one report of a culture which did not react with any of the phages in the typing scheme (UNTY).

There was one report of *S. Hadar* (PT1) in 2006. This strain was last reported from turkeys in 2000. In 2005 there were no reports of *S. Hadar*, while in 2004 there were 8 incidents of phage type PT10 and an untyped isolate reported. There were no reports of *S. Infantis*, the same as in 2005. There were ten reports of *S. Virchow* in 2006 (five of

phage type PT30 and five of phage type PT31), compared with five reports in 2005.

The second most common serovar reported was *S. Derby* (15.8% of reports). *Salmonella* Kottbus was the third most common serovar reported (14.6% of reports). Other common serovars reported were *S. Kedougou* (9.4% of reports) and *S. Newport* (8.2% of reports). Both the number of reports and the relative proportion of this serovar have decreased since 2005 when it was 33 and 13.6% respectively. There has been no reported resistance of *S. Newport* from turkeys to 3rd generation cephalosporins in 2006, as in previous years.

In 2006 there was a decrease in the number of reports of *S. Agona*, *S. Derby*, *S. Indiana*, *S. Kottbus*, *S. Montevideo*, and *S. Newport* and an increase in the number of reports of *S. Typhimurium* and *S. Virchow*. *Salmonella* Agama, *S. Binza* and *S. Hadar*, all reported in 2006, were previously reported in 2004, while *S. Taksony*, also reported in 2006, was previously reported in 2002. *Salmonella* Hato and *S. Teddington* have not been reported from turkeys since 2001.

In 2006 the following *Salmonella* serovars were reported from turkeys for reasons other than routine surveillance, for example through research projects, but were not reported through routine surveillance: *S. Typhimurium* definitive types DT12, DT104b, DT135, DT208 and DT56 variant, *S. Saint Paul*, *S. Anatum* and *S. Stourbridge*. These reports are not included in the tabulations of this publication.

The results of the EU survey which started in October 2006 will be reported in the *Salmonella Book for 2007* following completion of the survey in September 2007.

Ducks and Geese

There were 18 reports of *Salmonella* from geese in 2006: four *S. Enteritidis* PT9b, one *S. Kottbus*, one *S. O Rough:l:1,2*, ten *S. Typhimurium* DT8, one *S. Typhimurium* DT30 and one *S. Typhimurium* DT41. All of the *S. Enteritidis* reports and the majority of the *S. Typhimurium* reports in geese in 2006 were reported in the second quarter of 2006. The site received an advisory and investigation visit during which extensive sampling was carried out in the hatchery and poultry flocks. Recommendations were given including advice on general management and hygiene, use of disinfectants for control of the *Salmonella* infection and monitoring of the situation with routine sampling. There were no reports from geese in 2005, while there were two reports in 2004, one of which was *S. Enteritidis* PT4.

The increase in reports of *Salmonella* from ducks and geese seen in recent years was sustained in 2006 – the number of reports increased by 11% compared with 2005. Reports from ducks represented 11% of all *Salmonella* reports in 2003 compared with 16% in 2004, 18% in 2005 and 20% in 2006. This is the result of enhanced voluntary surveillance activities by the duck industry (Table 1). Only a small number of incidents are associated with clinical disease investigation (7.4%).

The most common serovars reported in ducks and geese were *S. Indiana* (28.7%), *S. Kedougou* (11.5%), *S. Typhimurium* (9.5%), *S. Binza* (6.9%), and *S. Orion* (5.9%). The relative proportion of these serovars changed from 2005, with an increase in *S. Typhimurium* and *S. Kedougou* (relative proportion of both serovars was 3.5% in 2005) and a decrease in *S. Indiana*, *S. Binza* and *S. Orion* (relative proportions in 2005 were 31.3%, 7.9% and 8.4% respectively). All *S. Kedougou* reports from ducks in 2006 were from the same company. The number, and proportion, of reports of *S. Hadar* decreased in 2006 (22 reports, 4.4% of all incident reports) compared with 2005 (25 reports; 5.5% of all incident reports); the most common phage types were PT22, PT10, PT11 and PT2. A variety of other serovars were reported. The number of incidents and relative proportion of *S. Kottbus*, *S. Saint Paul* and *S. Senftenberg* decreased in 2006 compared with 2005. *Salmonella* *Agama*, *S. Durham*, *S. Kentucky*, *S. Mbandaka*, *S. Yoruba*, *S. Bredeney*, *S. Goldcoast*, and *S. Newport* were new serovars reported from ducks in 2006. All were single incidents, except *S. Goldcoast* (2) and *S. Mbandaka* (19). *Salmonella* *Durham*, *S. Kentucky* and *S. Yoruba* have never been reported from ducks or geese before, *S. Agama* was previously reported in 1990, *S. Mbandaka* in 1994, *S. Bredeney* in 2002, and *S. Goldcoast* and *S. Newport* in 2004.

There were 48 reports of *S. Typhimurium*, a marked increase over previous years. The majority of these incidents were reported in the first quarter of 2006 and were the result of voluntary environmental monitoring at a single company. The most common phage type was DT8 (32 reports) and there was one report of DT2, five reports of DT30, three reports of DT41, one report of DT193, four reports of DT195, one report of U288, and one report of U309. Definitive type DT2 and undefined types U288 (a pig related strain) and U309 have never been reported from ducks before. Definitive types DT193 and DT195 were last reported from ducks in 1995 and 2002 respectively.

There were 23 reports of *S. Enteritidis* in 2006, the same as in 2005. Most were reported during the first quarter of 2006 and resulted from voluntary environmental hatchery monitoring at a single company. The

most common phage type was PT9b (9 reports, four of which were from geese). There were five reports of phage type PT6a, three reports of phage type PT6 and UNTY, and single reports of phage types PT3, PT7 and PT14b. New phage types reported in 2005 included PT3 (1 report), PT6 (7 reports) and PT14b (9 reports). Phage type PT7 was previously reported from ducks in 1996.

In 2006 there were two *Salmonella* reports from ducks of non-GB origin. These were one report of *S. Mbandaka* and one report of *S. Typhimurium* definitive type DT8. These reports are included in the tables and figures of this publication.

Game Birds

In 2006 reports of *Salmonella* in game birds (83 reports) increased more than 3 times compared with 2005 (23 reports). Most reports (59) were associated with clinically diseased pheasants. The most commonly reported serovars were *S. Binza* (9 reports from partridges and 21 from pheasants) and *S. Typhimurium* (30 incident reports; 36% of all incident reports). Both the number of reports and the relative proportion of *S. Typhimurium* from game birds increased in 2006 compared to 2005 (four incident reports; 17% of all incident reports). There were 21 incident reports of *S. Typhimurium* DT195 (one from a partridge and 20 from pheasants), four reports of DT2 (one from a partridge and three from pheasants), three reports of DT8 (all from pheasants) and single reports of DT56, a wild bird related strain, and DT135, both from partridges. DT8 was last reported from game birds (pheasants) in 2001 and DT135 in 1995. *Salmonella Typhimurium* DT208 has not been reported from game birds since 2001. There were no reports of *S. Pullorum* from game birds in 2006, while in 2005 there was a single reported isolation of *S. Pullorum* (untyped) associated with clinical disease in pheasants. There were no reports of *S. Enteritidis* in game birds in 2006, the same as in 2005 and 2004. *Salmonella* Montevideo, *S. Saint Paul* and *S. Enterica Houtenae* with antigenic structure 43:z4z23 have not been reported from game birds since 2001. New serovars reported from game birds in 2006 included *S. Rissen*, a feed related serovar, and *S. Regent*, both of which have never previously been reported from game birds, *S. Kedougou*, which was last reported from game birds (partridges) in 1999, *S. Kottbus* and *S. Senftenberg*, both of which were previously reported in 2003, and *S. Derby*, which was previously reported in 2004.

In 2006 there were six *Salmonella* reports from game birds of non-UK origin. These were the result of sampling in GB, of recently imported birds. These were single reports of *Salmonella* O Rough:Y:1,5 and

S. Orion from partridges and single reports of S. Binza, S. Derby,
S. Typhimurium DT8 and S. Typhimurium RDNC from pheasants.
These reports are included in the tables and figures of this publication.

Table 39: *Salmonella* in chickens on all premises

<i>Salmonella</i> Incidents (Isolations)	2002		2003		2004		2005		2006	
ENTERICA ENTERICA										
Agama	1	(1)	2	(6)	1	(1)	3	(4)	2	(2)
Agona	3	(3)	2	(5)	2	(2)	3	(5)	4	(4)
Ajiobo	1	(1)	-	(1)	-	(-)	-	(-)	-	(-)
Anatum	1	(1)	5	(6)	-	(-)	4	(4)	2	(2)
Binza	54	(57)	7	(8)	1	(1)	1	(1)	-	(-)
Braenderup	1	(1)	2	(2)	1	(1)	-	(-)	-	(-)
Brandenburg	-	(-)	11	(18)	18	(22)	-	(-)	-	(-)
Bredeneý	12	(13)	10	(12)	-	(-)	-	(-)	-	(-)
Carno	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
Cerro	-	(-)	-	(-)	-	(-)	-	(-)	3	(6)
Cubana	-	(-)	1	(1)	-	(-)	1	(1)	-	(-)
Derby	3	(4)	3	(3)	-	(-)	1	(1)	-	(-)
Dublin	-	(-)	-	(-)	1	(1)	1	(1)	-	(-)
Eimsbuettel	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
Enteritidis	11	(15)	43	(48)	8	(13)	19	(30)	11	(27)
Gallinarum	-	(-)	-	(-)	-	(-)	5	(9)	5	(14)
Give	18	(18)	6	(6)	28	(28)	6	(6)	4	(4)
Gloucester	-	(-)	-	(-)	-	(-)	1	(1)	-	(-)
Goldcoast	10	(11)	9	(10)	-	(-)	1	(1)	-	(-)
Hadar	17	(17)	6	(7)	-	(-)	-	(-)	5	(6)
Havana	2	(2)	11	(11)	5	(5)	5	(5)	9	(9)
Heidelberg	23	(23)	2	(2)	-	(-)	-	(-)	-	(-)
Idikan	1	(1)	-	(-)	2	(2)	11	(11)	2	(2)
Indiana	7	(8)	4	(4)	8	(8)	1	(2)	3	(3)
Infantis	3	(3)	9	(9)	18	(18)	6	(6)	2	(4)
Kedougou	60	(70)	48	(49)	33	(33)	31	(36)	29	(35)
Kentucky	2	(3)	-	(-)	5	(5)	1	(1)	1	(1)
Kottbus	1	(1)	5	(5)	5	(5)	3	(4)	2	(2)
Larochelle	2	(2)	-	(-)	-	(-)	1	(1)	-	(-)
Lexington	1	(1)	-	(-)	10	(10)	3	(3)	-	(-)
Liverpool	31	(35)	27	(27)	46	(47)	16	(17)	2	(3)
Livingstone	122	(200)	141	(151)	147	(150)	127	(171)	53	(65)
Mbandaka	51	(58)	50	(54)	22	(23)	16	(24)	10	(11)
Meleagridis	-	(-)	1	(1)	1	(1)	2	(2)	-	(-)
Menston	-	(-)	-	(-)	-	(-)	2	(2)	-	(-)
Montevideo	56	(112)	49	(50)	15	(15)	11	(15)	12	(13)
Newport	8	(10)	4	(6)	11	(11)	2	(2)	2	(2)

Table 39: *Salmonella* in chickens on all premises

<i>Salmonella</i> Incidents (Isolations)	2002	2003	2004	2005	2006
ENTERICA ENTERICA					
Ohio	38 (49)	32 (32)	31 (31)	20 (23)	36 (36)
Orion	15 (15)	4 (4)	1 (1)	- (-)	- (-)
Oskarshamn	- (-)	- (-)	- (-)	- (-)	1 (1)
Pullorum	1 (1)	2 (2)	3 (3)	- (-)	- (1)
Reading	- (-)	1 (1)	1 (1)	- (-)	- (-)
Rissen	1 (1)	- (-)	- (-)	3 (3)	- (-)
Saint Paul	- (-)	- (-)	2 (2)	- (-)	1 (1)
Schwarzengrund	- (-)	- (-)	- (-)	- (-)	1 (1)
Senftenberg	107 (150)	67 (73)	78 (79)	50 (78)	37 (52)
Stanley	1 (1)	- (-)	- (-)	- (-)	- (-)
Stourbridge	- (-)	1 (1)	- (-)	- (-)	2 (2)
Sundsvall	- (-)	- (-)	- (-)	1 (1)	- (-)
Taksony	1 (1)	- (-)	- (-)	- (-)	1 (1)
Tennessee	4 (4)	7 (7)	2 (2)	1 (1)	- (-)
Thompson	31 (31)	12 (14)	35 (36)	28 (33)	13 (15)
Typhimurium	36 (44)	20 (26)	12 (12)	8 (9)	6 (8)
Virchow	47 (48)	73 (79)	31 (32)	13 (14)	4 (5)
Wangata	1 (1)	- (-)	- (-)	- (-)	- (-)
Worthington	- (-)	1 (1)	- (-)	- (-)	1 (1)
Yoruba	- (-)	1 (1)	1 (1)	2 (2)	- (-)
UNSPECIFIED					
structure only	82 (92)	159 (173)	108 (110)	45 (121)	33 (77)
rough strain	2 (2)	4 (5)	3 (3)	7 (11)	3 (4)
TOTAL	869 (1111)	843 (924)	696 (717)	463 (664)	302 (422)

Fig 31: Incidents in *Salmonella* serotypes in chickens in 2006

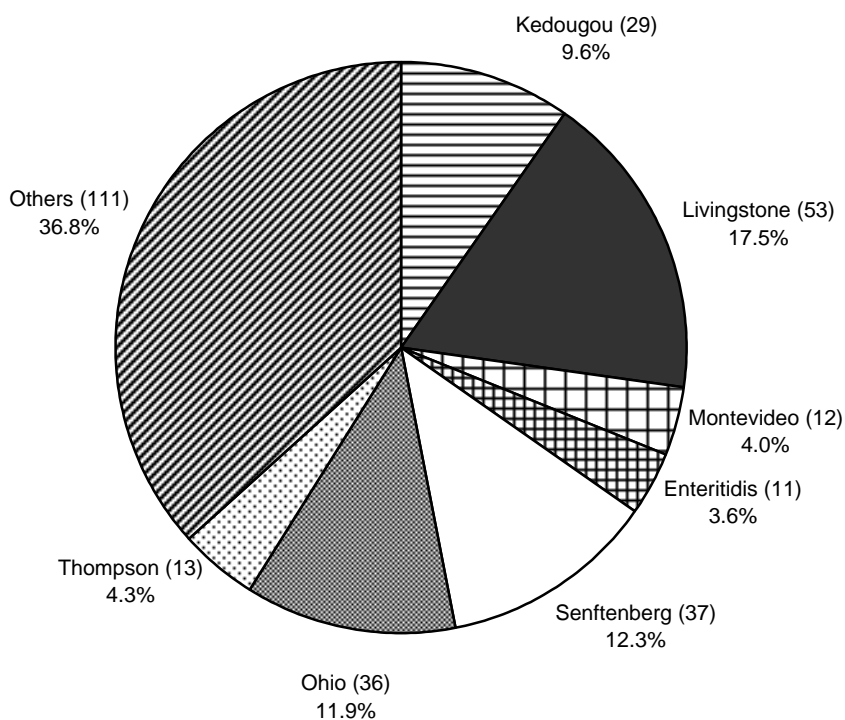


Table 40: Incidents of the top 5 *Salmonella* serotypes in chickens in 2006 as a % of all incidents compared to previous years

Serotype	2002	2003	2004	2005	2006
S. Livingstone %	14.0	16.7	21.1	27.4	17.5
S. Senftenberg %	12.3	7.9	11.2	10.8	12.3
S. Ohio %	4.4	3.8	4.5	4.3	11.9
S. Kedougou %	6.9	5.7	4.7	6.7	9.6
S. Thompson %	3.6	1.4	5.0	6.0	4.3
Total no. incidents	869	843	696	463	302

Fig 32: Incidents of *Salmonella* serotypes in chickens (2002 - 2006)

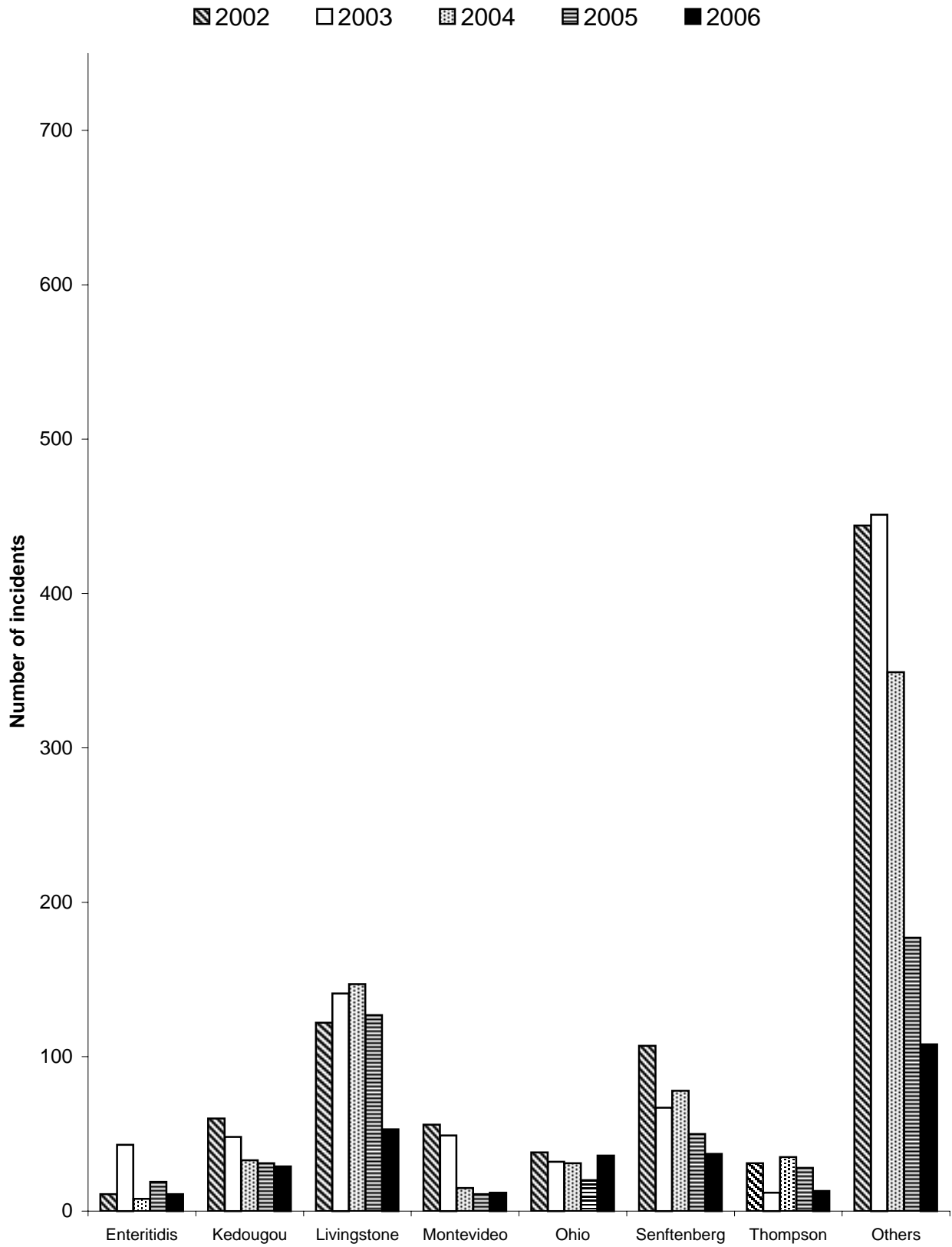


Table 41: S. Typhimurium in chickens on all premises

Definitive Types Incidents (Isolations)	2002		2003		2004		2005		2006	
2	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
8	-	(-)	-	(-)	-	(-)	-	(1)	-	(-)
12	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
40	-	(-)	-	(-)	1	(1)	-	(-)	2	(3)
41	-	(-)	1	(1)	1	(1)	-	(-)	-	(-)
49	-	(-)	1	(1)	1	(1)	1	(1)	-	(-)
56	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
85	1	(1)	-	(-)	-	(-)	1	(1)	-	(-)
104	24	(30)	8	(13)	6	(6)	6	(6)	2	(3)
120	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
193	1	(1)	2	(2)	1	(1)	-	(-)	-	(-)
193a	-	(-)	2	(2)	-	(-)	-	(-)	-	(-)
195	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)
208	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
U302	6	(8)	2	(2)	-	(-)	-	(-)	-	(-)
U317	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
RDNC	1	(1)	-	(1)	-	(-)	-	(-)	-	(-)
UNTY	2	(2)	1	(1)	-	(-)	-	(-)	1	(1)
TOTAL	36	(44)	20	(26)	12	(12)	8	(9)	6	(8)

Fig 33: Incidents of *Salmonella* Typhimurium definitive types in chickens in 2006

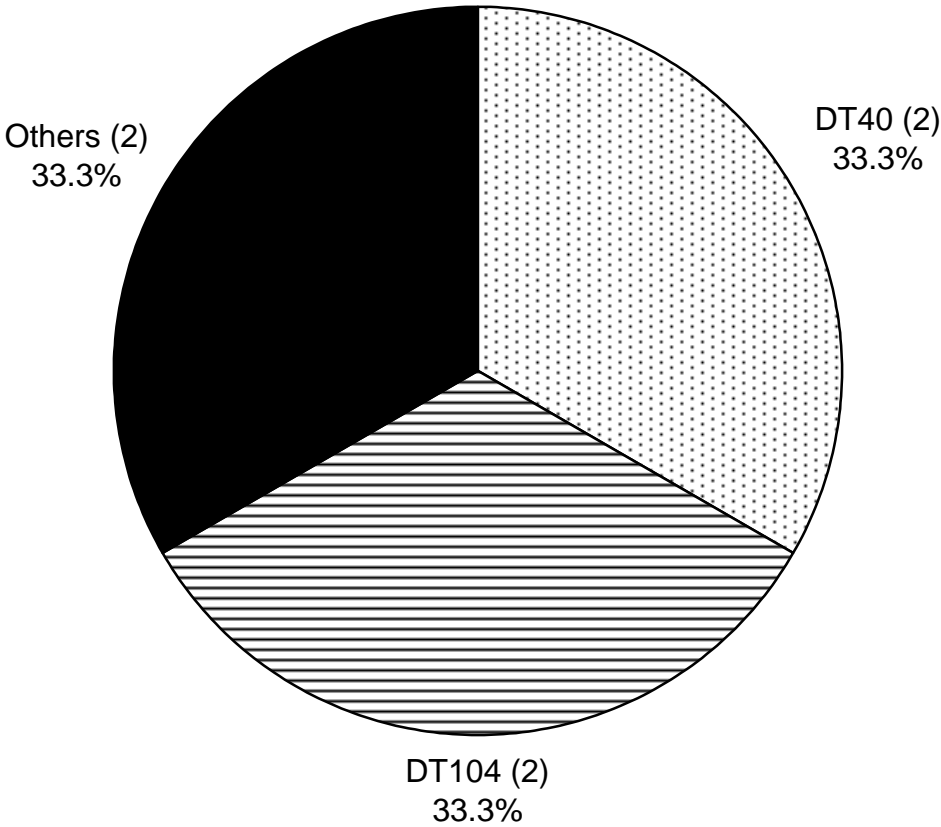


Fig 34: Incidents of *Salmonella* Typhimurium definitive types in chickens (2002 - 2006)

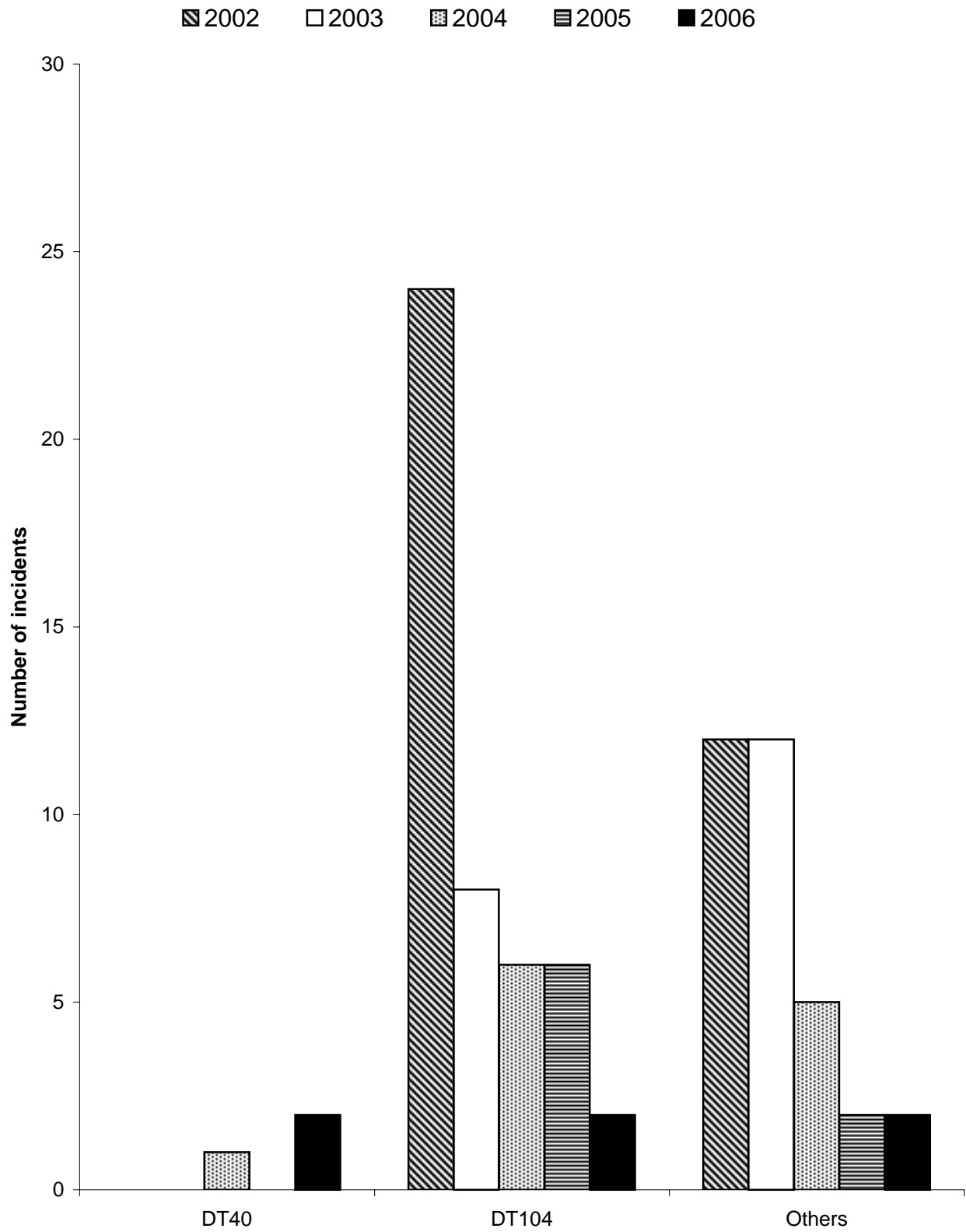


Table 42: Incidents of *S. Typhimurium* definitive types in chickens in 2006 by flock type

	Number of incidents by definitive type				Total
	DT 104	DT 40	DT 195	UNTY	
Broiler production flocks	0	0	1	1	2
Layer breeding flocks	0	1	0	0	1
Pet/backyard flocks	2	1	0	0	3

Table 43: S. Enteritidis in chickens on all premises

Phage Types Incidents (Isolations)	2002		2003		2004		2005		2006	
1	-	(-)	1	(1)	-	(-)	1	(1)	7	(16)
4	5	(5)	29	(32)	2	(7)	7	(15)	2	(9)
4b	-	(-)	-	(-)	-	(-)	1	(2)	-	(-)
5a	-	(-)	-	(-)	-	(-)	1	(1)	-	(-)
6	3	(7)	7	(7)	2	(2)	2	(2)	1	(1)
6a	-	(-)	5	(5)	-	(-)	2	(2)	-	(-)
7	-	(-)	-	(1)	1	(1)	2	(3)	-	(-)
8	1	(1)	-	(-)	1	(1)	-	(-)	-	(-)
9b	-	(-)	-	(-)	-	(-)	-	(1)	-	(-)
11	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
12	-	(-)	1	(1)	-	(-)	2	(2)	-	(-)
28	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)
35	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
RDNC	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
NOPT	-	(-)	-	(1)	-	(-)	-	(-)	-	(-)
UNTY	1	(1)	-	(-)	-	(-)	1	(1)	-	(-)
TOTAL	11	(15)	43	(48)	8	(13)	19	(30)	11	(27)

Fig 35: Incidents of *Salmonella* Enteritidis phage types in chickens (2002 - 2006)

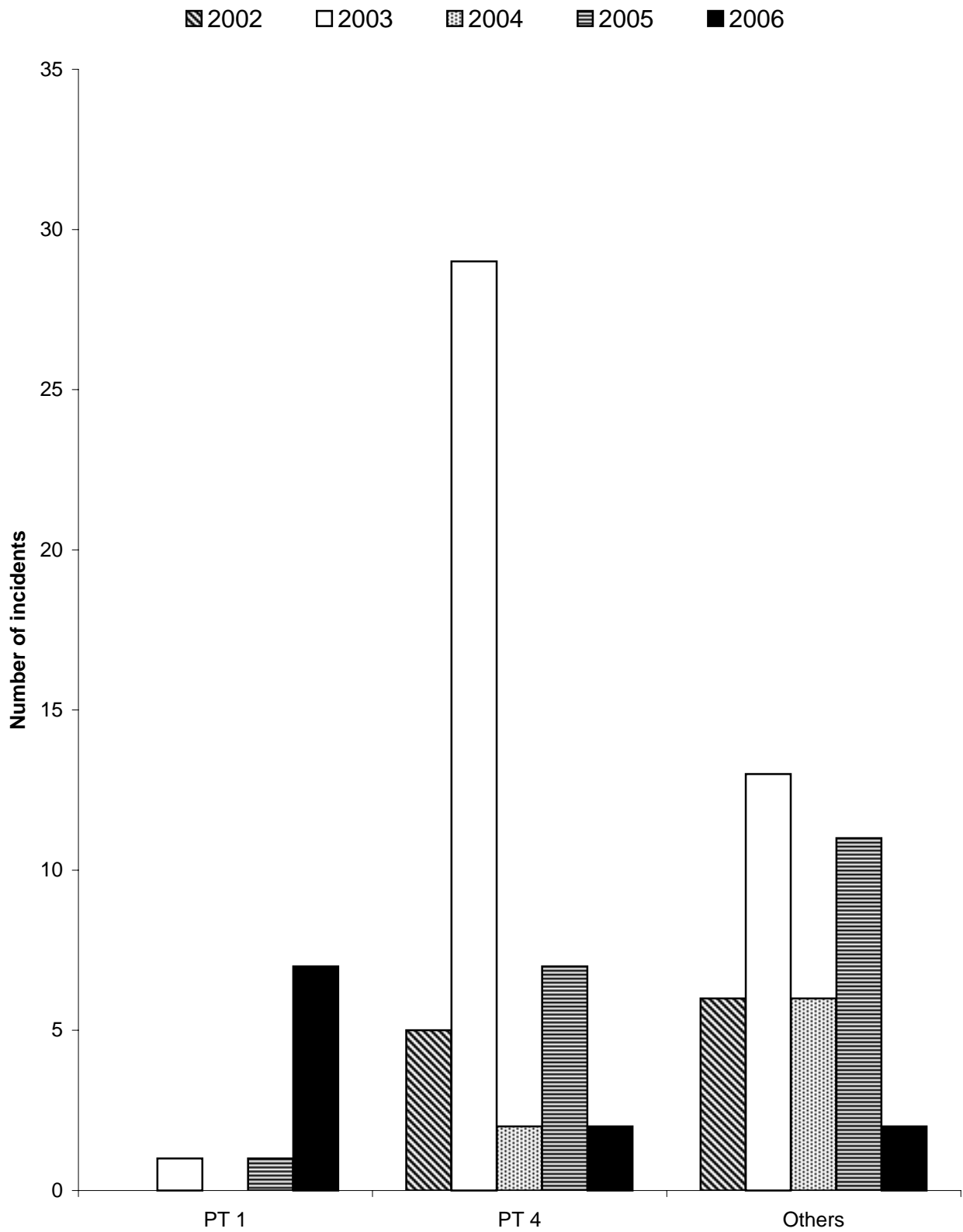


Table 44: Incidents of *S. Enteritidis* phage types in chickens in 2006 by flock type

	Number of incidents by phage type				
	PT 1	PT 4	PT 6	PT 28	Total
Breeding flocks	4	0	0	0	4
Broiler production flocks	3	1	0	0	4
Egg layer flocks	0	1	1	1	3

Fig 36: S. Enteritidis and S. Typhimurium as a proportion of all incident reports in chickens (1986 - 2006)

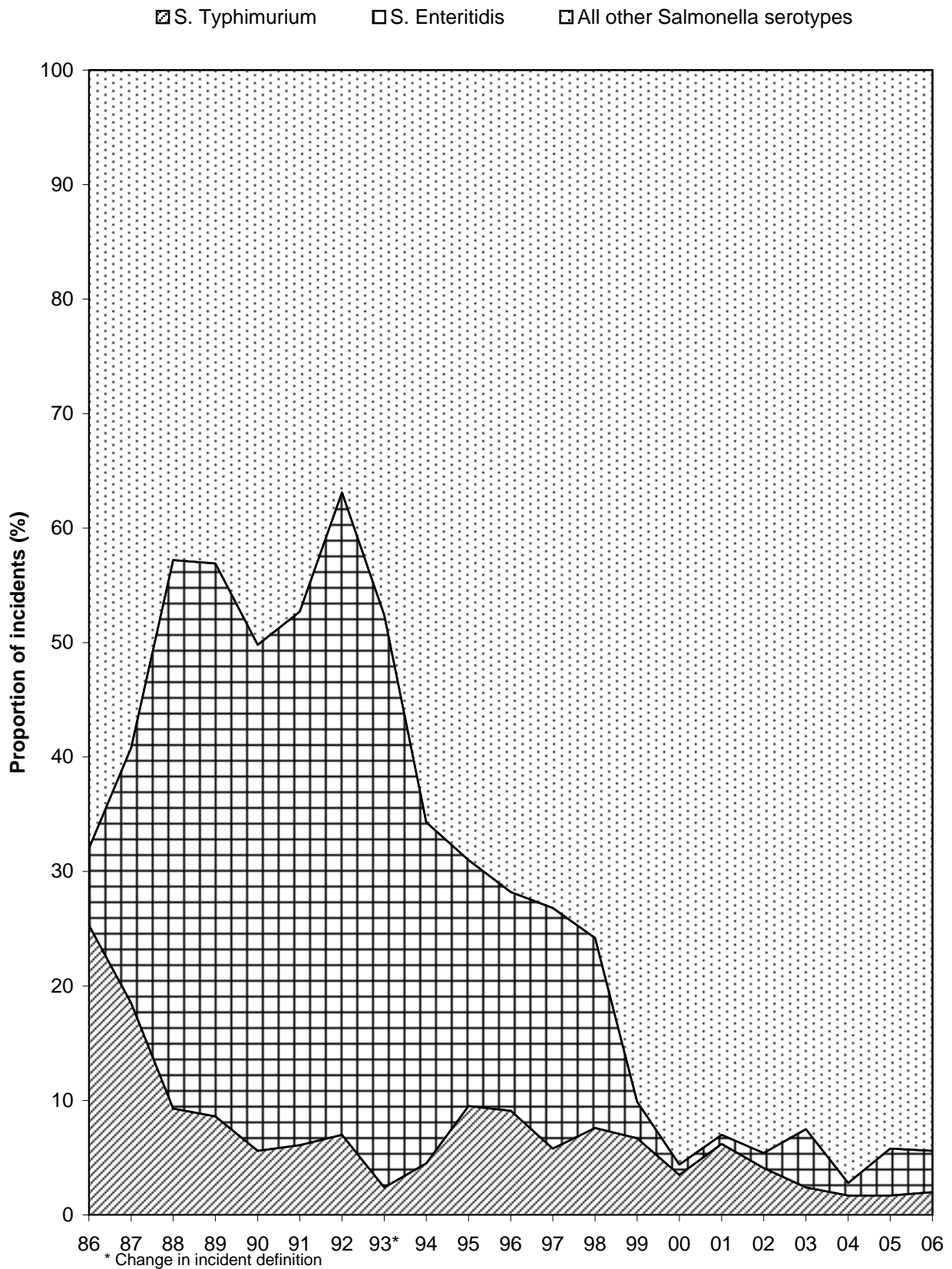


Table 45: S. Hadar in chickens on all premises

Phage Types Incidents (Isolations)	2002		2003		2004		2005		2006	
2	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
9	-	(-)	2	(2)	-	(-)	-	(-)	-	(-)
10	1	(1)	2	(2)	-	(-)	-	(-)	1	(2)
14	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
22	3	(3)	-	(-)	-	(-)	-	(-)	3	(3)
47	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)
58a	-	(-)	2	(3)	-	(-)	-	(-)	-	(-)
RDNC	6	(6)	-	(-)	-	(-)	-	(-)	-	(-)
NOPT	5	(5)	-	(-)	-	(-)	-	(-)	-	(-)
TOTAL	17	(17)	6	(7)	-	(-)	-	(-)	5	(6)

Table 46: S. Pullorum in chickens on all premises

Phage Types Incidents (Isolations)	2002		2003		2004		2005		2006	
1	-	(-)	1	(1)	3	(3)	-	(-)	-	(-)
15	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
NOPT	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
untyped	-	(-)	-	(-)	-	(-)	-	(-)	-	(1)
TOTAL	1	(1)	2	(2)	3	(3)	-	(-)	-	(1)

Table 47: S. Thompson in chickens on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
1	2 (2)	1 (1)	- (-)	- (-)	- (-)
1a	6 (6)	4 (4)	11 (12)	9 (11)	5 (7)
3	1 (1)	- (-)	- (-)	- (-)	- (-)
6	9 (9)	6 (8)	22 (22)	9 (10)	6 (6)
11	- (-)	- (-)	1 (1)	- (-)	- (-)
14	- (-)	1 (1)	- (-)	2 (2)	- (-)
RDNC	1 (1)	- (-)	1 (1)	1 (1)	1 (1)
NOPT	12 (12)	- (-)	- (-)	- (-)	- (-)
UNTY	- (-)	- (-)	- (-)	- (-)	1 (1)
untyped	- (-)	- (-)	- (-)	7 (9)	- (-)
TOTAL	31 (31)	12 (14)	35 (36)	28 (33)	13 (15)

Table 48: S. Virchow in chickens on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
2	22 (22)	51 (53)	20 (20)	11 (12)	3 (4)
4	9 (9)	16 (17)	7 (7)	- (-)	- (-)
26	- (-)	4 (4)	2 (2)	- (-)	1 (1)
31	- (-)	- (-)	- (-)	1 (1)	- (-)
35	- (-)	1 (1)	2 (2)	- (-)	- (-)
57	- (-)	1 (1)	- (-)	1 (1)	- (-)
RDNC	- (-)	- (1)	- (-)	- (-)	- (-)
NOPT	16 (17)	- (2)	- (1)	- (-)	- (-)
TOTAL	47 (48)	73 (79)	31 (32)	13 (14)	4 (5)

Table 49: *Salmonella* in turkeys on all premises

<i>Salmonella</i> Incidents (Isolations)	2002		2003		2004		2005		2006	
ENTERICA ENTERICA										
Agama	-	(-)	-	(-)	3	(3)	-	(-)	1	(1)
Agona	9	(10)	21	(22)	16	(17)	19	(19)	8	(10)
Ajiobo	-	(-)	-	(-)	3	(3)	-	(-)	-	(-)
Anatum	2	(2)	-	(-)	-	(-)	4	(4)	-	(-)
Binza	2	(2)	-	(-)	1	(1)	-	(-)	2	(2)
Bredeney	1	(2)	5	(6)	3	(3)	1	(1)	-	(-)
Corvallis	-	(-)	3	(3)	6	(6)	1	(1)	-	(-)
Derby	18	(22)	28	(42)	21	(21)	40	(59)	27	(49)
Dublin	-	(-)	-	(-)	2	(2)	-	(-)	-	(-)
Enteritidis	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
Fischerkietz	1	(1)	-	(-)	2	(2)	-	(-)	-	(-)
Goldcoast	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
Hadar	4	(4)	14	(14)	8	(9)	-	(-)	1	(1)
Indiana	9	(11)	33	(39)	23	(23)	26	(33)	10	(14)
Infantis	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
Kedougou	-	(-)	6	(6)	19	(19)	17	(18)	16	(18)
Kentucky	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
Kottbus	5	(5)	27	(31)	27	(28)	39	(46)	25	(34)
Larochelle	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
Manhattan	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
Mbandaka	1	(1)	-	(-)	1	(1)	1	(1)	-	(-)
Meleagridis	1	(1)	1	(1)	-	(-)	1	(1)	-	(-)
Menston	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
Montevideo	14	(16)	63	(65)	9	(9)	13	(15)	4	(7)
Newport	22	(22)	32	(33)	37	(37)	33	(35)	14	(19)
Orion	-	(-)	-	(-)	1	(1)	1	(1)	-	(-)
Poona	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
Rissen	-	(-)	-	(-)	2	(2)	2	(2)	-	(-)
Saint Paul	2	(2)	-	(-)	-	(-)	2	(2)	-	(-)
Schwarzengrund	1	(2)	2	(2)	-	(-)	-	(-)	-	(-)
Senftenberg	2	(2)	-	(-)	-	(-)	2	(3)	1	(1)
Stanley	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)

Table 49: *Salmonella* in turkeys on all premises

<i>Salmonella</i> Incidents (Isolations)	2002		2003		2004		2005		2006	
ENTERICA ENTERICA										
Taksony	1	(1)	-	(-)	-	(-)	-	(-)	2	(2)
Typhimurium	23	(34)	27	(39)	44	(47)	22	(27)	37	(48)
Virchow	-	(-)	13	(13)	11	(11)	5	(5)	10	(14)
UNSPECIFIED										
structure only	1	(1)	28	(28)	14	(14)	13	(19)	11	(15)
rough strain	1	(1)	8	(9)	1	(1)	1	(1)	2	(2)
Untyped	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
TOTAL	122	(144)	316	(358)	257	(263)	243	(293)	171	(237)

Fig 37: Incidents of *Salmonella* serotypes in turkeys in 2006

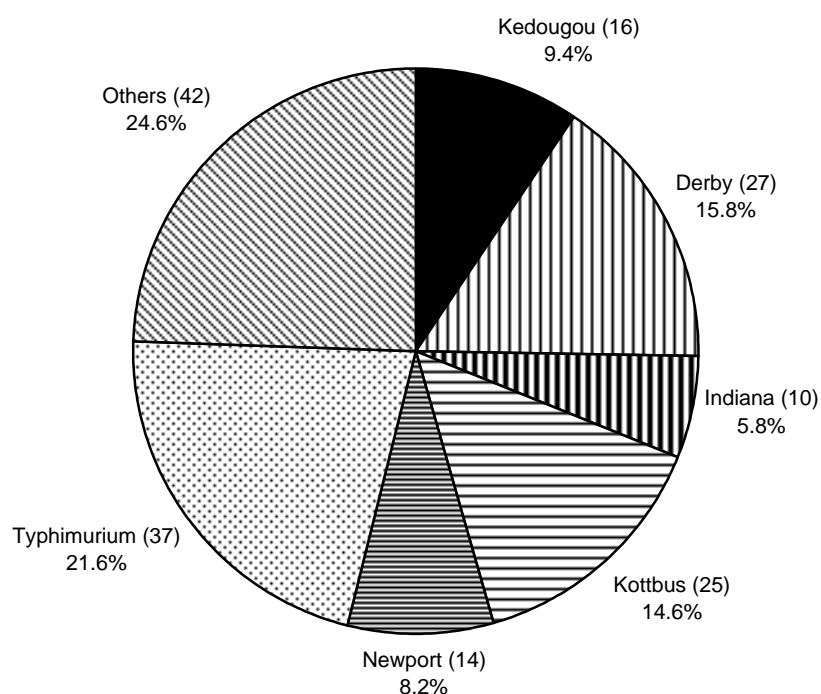


Table 50: Incidents of the top 5 *Salmonella* serotypes in turkeys in 2006 as a % of all incidents compared to previous years

Serotype	2002	2003	2004	2005	2006
S. Typhimurium %	18.9	8.5	17.1	9.1	21.6
S. Derby %	14.8	8.9	8.2	16.5	15.8
S. Kottbus %	4.1	8.5	10.5	16.0	14.6
S. Kedougou %	0.0	1.9	7.4	7.0	9.4
S. Newport %	18.0	10.1	14.4	13.6	8.2
Total no. incidents	122	316	257	243	171

Fig 38: Incidents of *Salmonella* serotypes in turkeys (2002 - 2006)

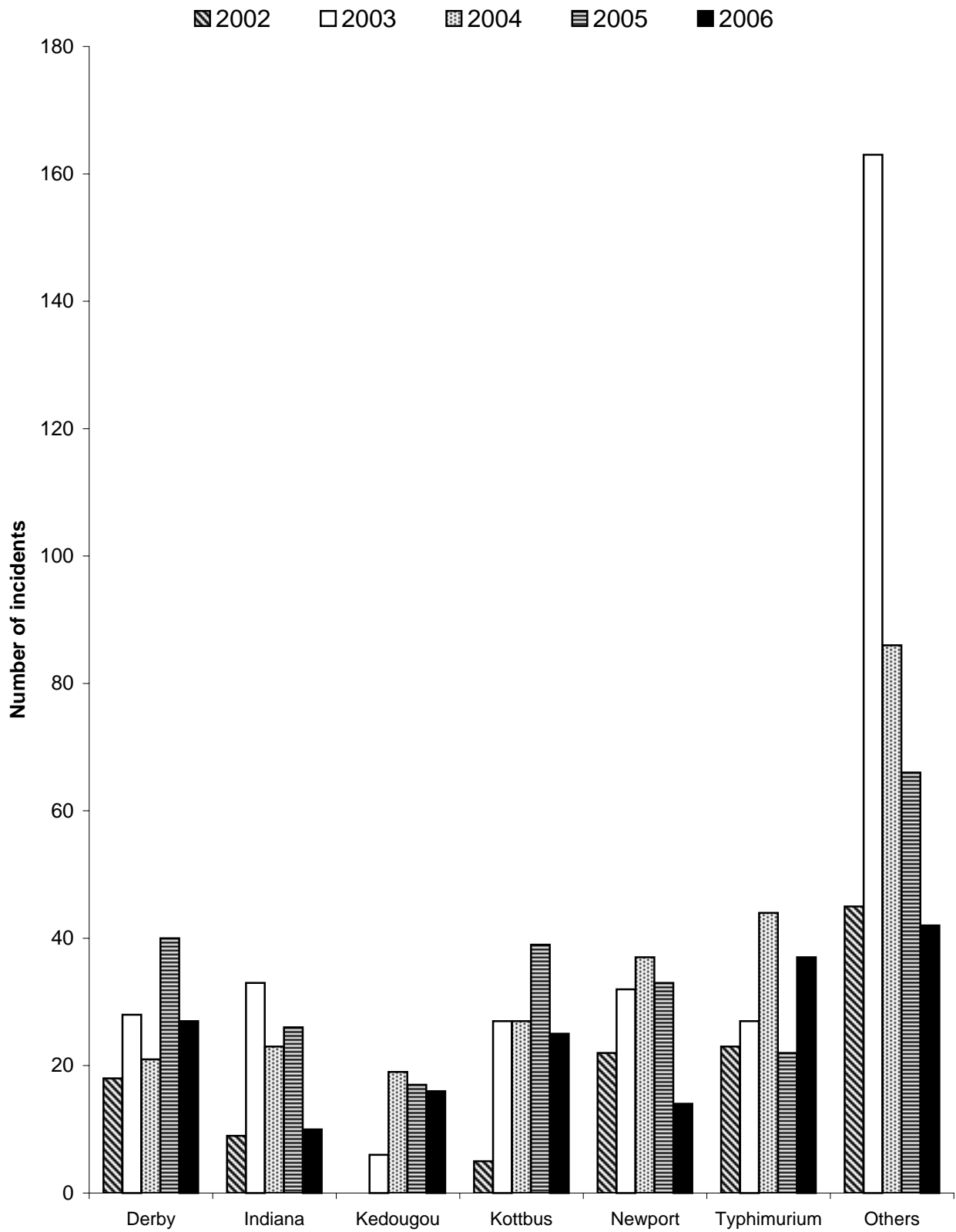


Table 51: S. Typhimurium in turkeys on all premises

Definitive Types Incidents (Isolations)	2002	2003	2004	2005	2006
8	- (-)	- (-)	- (-)	- (-)	1 (1)
41	- (-)	- (-)	1 (1)	- (-)	- (-)
56	- (-)	- (-)	1 (1)	1 (1)	- (-)
99	- (-)	- (-)	5 (6)	- (-)	- (-)
104	17 (28)	26 (38)	31 (33)	18 (23)	32 (43)
120	1 (1)	- (-)	5 (5)	- (-)	1 (1)
193	- (-)	- (-)	- (-)	- (-)	1 (1)
U288	- (-)	1 (1)	- (-)	1 (1)	- (-)
U302	1 (1)	- (-)	- (-)	2 (2)	1 (1)
U308a	1 (1)	- (-)	- (-)	- (-)	- (-)
NOPT	2 (2)	- (-)	- (-)	- (-)	- (-)
UNTY	1 (1)	- (-)	- (1)	- (-)	1 (1)
TOTAL	23 (34)	27 (39)	44 (47)	22 (27)	37 (48)

Fig 39: Incidents of *Salmonella* Typhimurium definitive types in turkeys in 2006

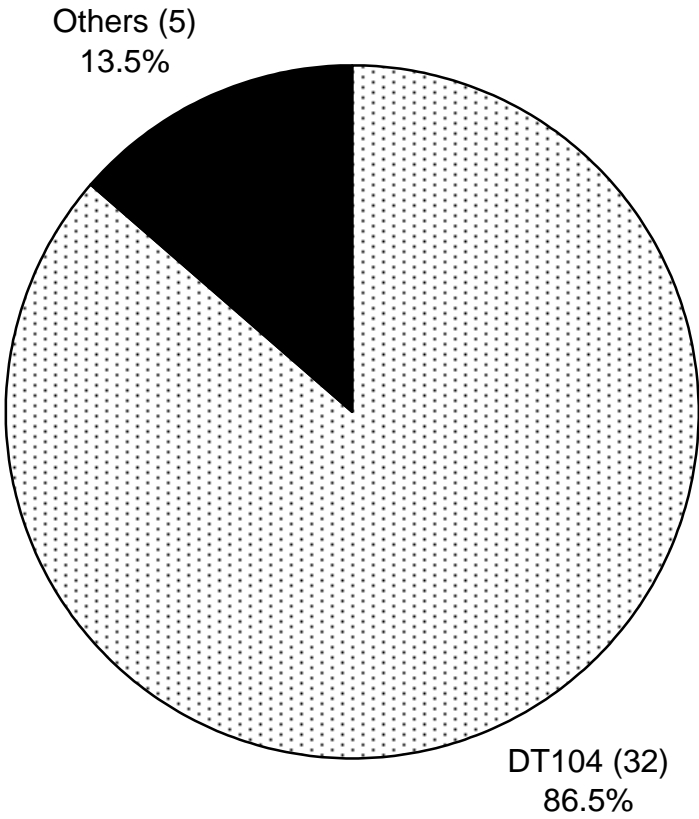


Fig 40: Incidents of *Salmonella* Typhimurium definitive types in turkeys (2002 - 2006)

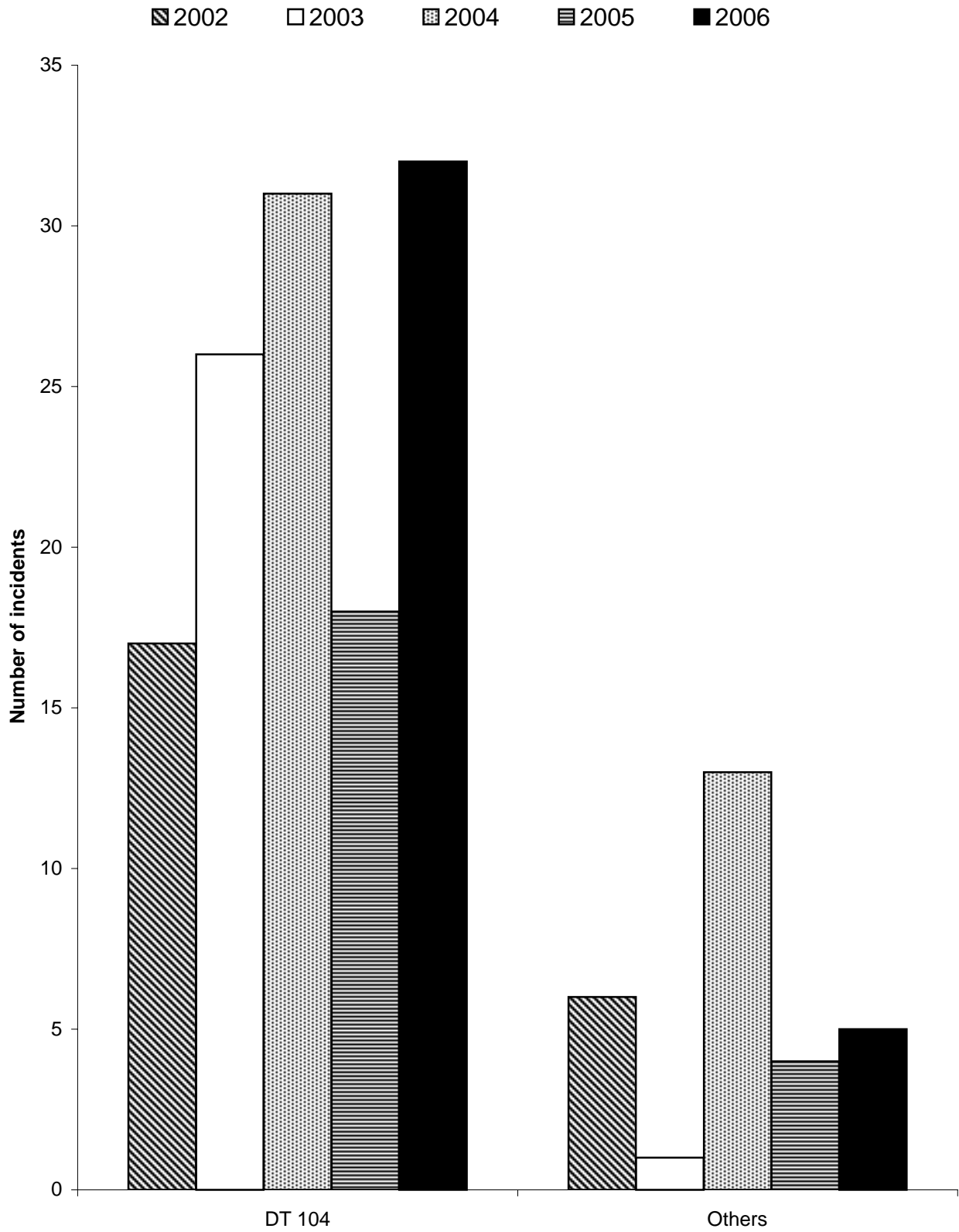


Table 52: S. Enteritidis in turkeys on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
UNTY	- (-)	- (-)	1 (1)	- (-)	- (-)
TOTAL	- (-)	- (-)	1 (1)	- (-)	- (-)

Table 53: S. Hadar in turkeys on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
1	- (-)	- (-)	- (-)	- (-)	1 (1)
2	1 (1)	1 (1)	- (-)	- (-)	- (-)
10	1 (1)	12 (12)	8 (8)	- (-)	- (-)
18	- (-)	1 (1)	- (-)	- (-)	- (-)
NOPT untyped	2 (2) - (-)	- (-) - (-)	- (-) - (1)	- (-) - (-)	- (-) - (-)
TOTAL	4 (4)	14 (14)	8 (9)	- (-)	1 (1)

Table 54: S. Virchow in turkeys on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
19	- (-)	- (-)	1 (1)	- (-)	- (-)
26	- (-)	13 (13)	10 (10)	3 (3)	- (-)
30	- (-)	- (-)	- (-)	- (-)	5 (9)
31	- (-)	- (-)	- (-)	2 (2)	5 (5)
TOTAL	- (-)	13 (13)	11 (11)	5 (5)	10 (14)

Fig 41 : S. Enteritidis and S. Typhimurium as a proportion of all reports in turkeys (1986 - 2006)

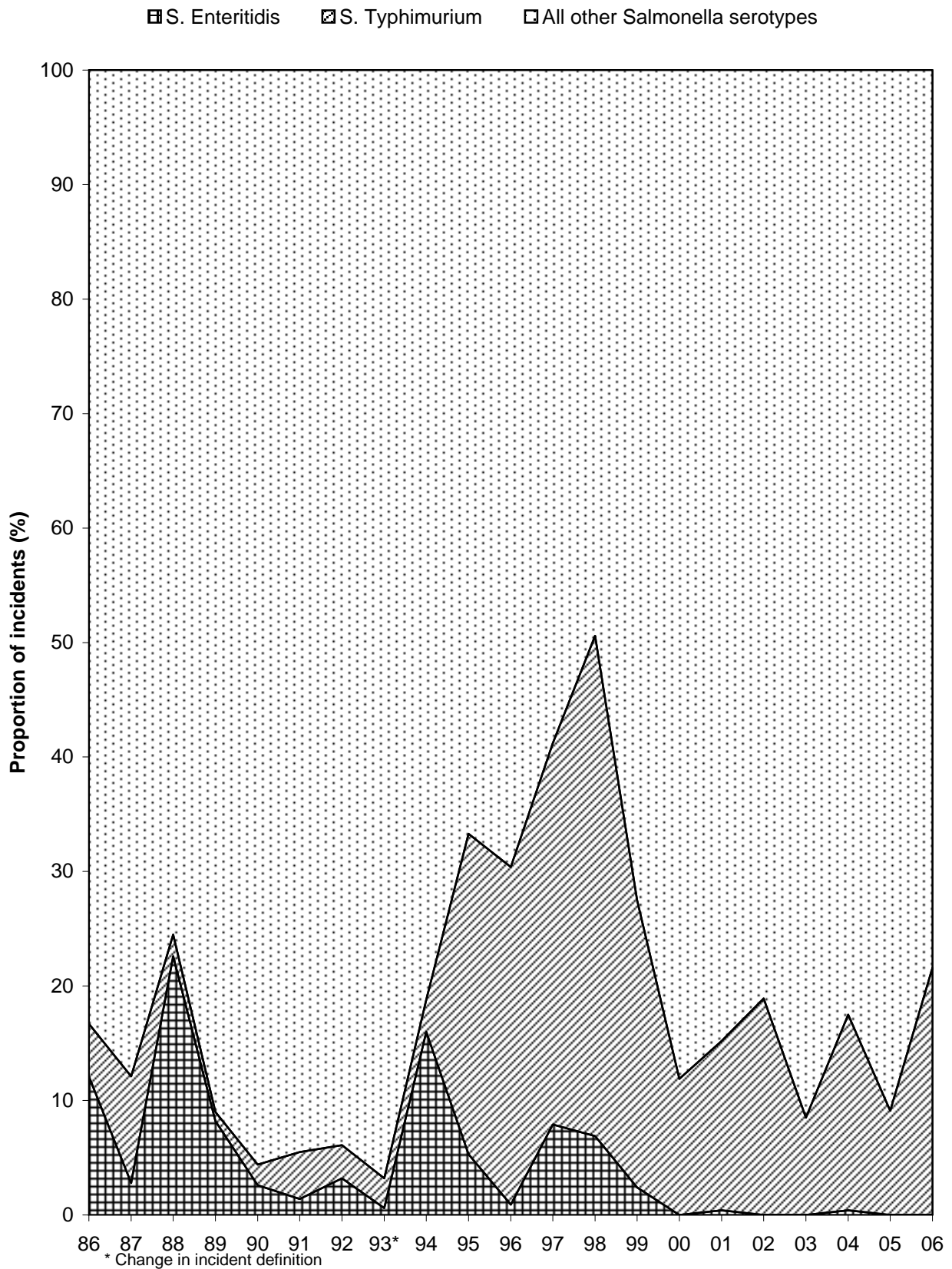


Table 55: *Salmonella* in ducks & geese on all premises

<i>Salmonella</i> Incidents (Isolations)	2002		2003		2004		2005		2006	
ENTERICA ENTERICA										
Agama	-	(-)	-	(-)	-	(-)	-	(-)	1	(2)
Agona	1	(1)	3	(3)	3	(3)	-	(-)	-	(-)
Anatum	1	(1)	-	(-)	3	(3)	1	(1)	1	(1)
Binza	30	(55)	62	(73)	81	(86)	36	(46)	35	(49)
Bredeney	1	(1)	-	(-)	-	(-)	-	(-)	1	(1)
Derby	1	(1)	2	(2)	2	(2)	5	(5)	7	(10)
Durham	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)
Enteritidis	11	(14)	5	(6)	8	(8)	23	(69)	23	(31)
Give	13	(13)	22	(24)	15	(15)	15	(15)	12	(13)
Goldcoast	3	(3)	1	(2)	2	(2)	-	(-)	2	(2)
Hadar	27	(35)	30	(33)	52	(57)	25	(27)	22	(24)
Havana	2	(4)	4	(6)	5	(5)	3	(3)	3	(4)
Idikan	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
Indiana	62	(89)	123	(133)	130	(137)	142	(179)	145	(202)
Kedougou	4	(4)	21	(22)	32	(33)	16	(28)	58	(68)
Kentucky	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)
Kottbus	3	(3)	3	(4)	5	(5)	32	(40)	24	(33)
Livingstone	15	(20)	43	(47)	96	(98)	10	(12)	8	(12)
Mbandaka	-	(-)	-	(-)	-	(-)	-	(-)	19	(27)
Muenchen	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
Newport	-	(-)	-	(-)	1	(1)	-	(-)	1	(1)
Ohio	-	(-)	-	(-)	-	(-)	2	(2)	2	(2)
Orion	31	(52)	37	(40)	39	(40)	38	(43)	30	(49)
Poona	-	(-)	-	(-)	-	(-)	1	(1)	-	(-)
Reading	-	(-)	-	(-)	-	(-)	4	(4)	-	(-)
Saint Paul	3	(3)	2	(2)	3	(3)	22	(25)	10	(13)
Schwarzengrund	-	(-)	-	(-)	-	(-)	1	(1)	-	(-)
Senftenberg	8	(8)	-	(-)	1	(1)	42	(58)	24	(31)
Typhimurium	11	(13)	13	(13)	8	(9)	16	(72)	48	(57)
Yoruba	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)

Table 55: *Salmonella* in ducks & geese on all premises

<i>Salmonella</i> Incidents (Isolations)	2002	2003	2004	2005	2006
UNSPECIFIED					
structure only	5 (6)	8 (11)	18 (21)	20 (24)	20 (24)
rough strain	2 (2)	1 (1)	- (-)	- (-)	5 (5)
untyped	1 (1)	- (-)	- (-)	- (-)	- (1)
untypable	- (-)	1 (1)	- (-)	- (-)	- (1)
TOTAL	236 (330)	381 (423)	505 (530)	454 (655)	505 (668)

Fig 42: Incidents of *Salmonella* serotypes in ducks and geese in 2006

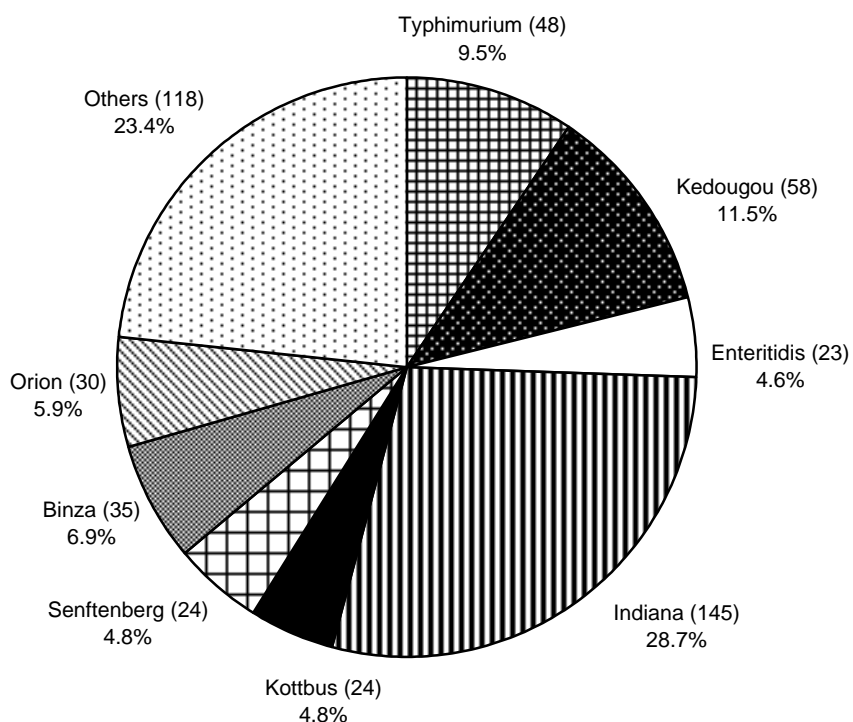


Table 56: Incidents of the top 5 *Salmonella* serotypes in ducks & geese in 2006 as a % of all incidents compared to previous years

Serotype	2002	2003	2004	2005	2006
S. Indiana %	26.3	32.3	25.7	31.3	28.7
S. Kedougou %	1.7	5.5	6.3	3.5	11.5
S. Typhimurium %	4.7	3.4	1.6	3.5	9.5
S. Binza %	12.7	16.3	16.0	7.9	6.9
S. Orion %	13.1	9.7	7.7	8.4	5.9
Total no. incidents	236	381	505	454	505

Fig 43: Incidents of *Salmonella* serotypes in ducks and geese (2002 - 2006)

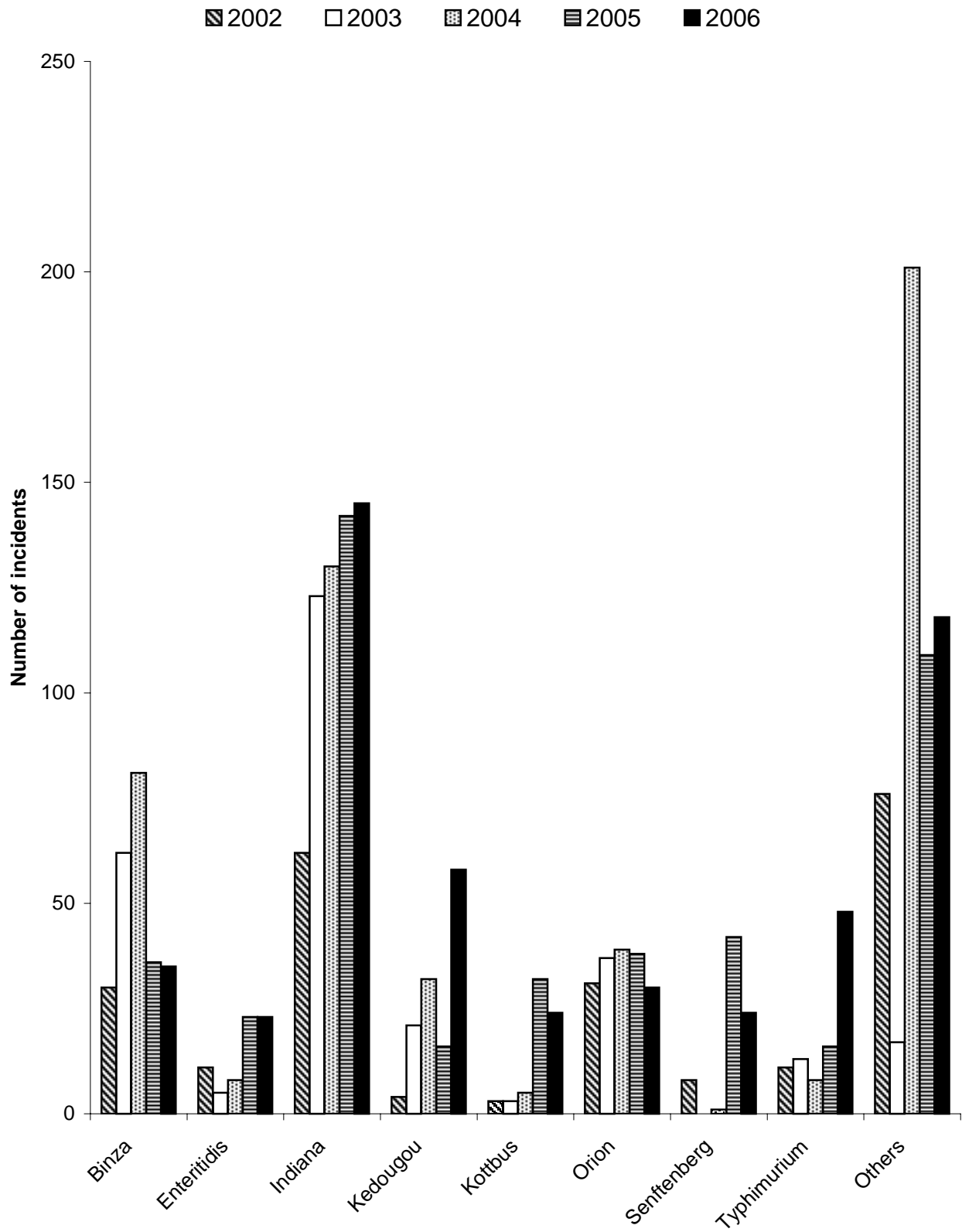


Table 57: S. Typhimurium in ducks & geese on all premises

Definitive Types Incidents (Isolations)	2002	2003	2004	2005	2006
2	- (-)	- (-)	- (-)	- (-)	1 (2)
8	8 (10)	10 (10)	5 (5)	10 (61)	32 (38)
30	2 (2)	3 (3)	1 (1)	2 (6)	5 (5)
41	- (-)	- (-)	2 (2)	2 (2)	3 (3)
66	- (-)	- (-)	- (-)	1 (1)	- (-)
193	- (-)	- (-)	- (-)	- (-)	1 (1)
195	1 (1)	- (-)	- (-)	- (-)	4 (4)
U288	- (-)	- (-)	- (-)	- (-)	1 (2)
U309	- (-)	- (-)	- (-)	- (-)	1 (1)
RDNC	- (-)	- (-)	- (1)	- (-)	- (-)
NOPT	- (-)	- (-)	- (-)	- (-)	- (1)
UNTY	- (-)	- (-)	- (-)	1 (2)	- (-)
TOTAL	11 (13)	13 (13)	8 (9)	16 (72)	48 (57)

Table 58: S. Enteritidis in ducks & geese on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
1	- (-)	- (-)	3 (3)	- (-)	- (-)
3	- (-)	- (-)	- (-)	- (1)	1 (1)
4	- (-)	- (-)	1 (1)	- (-)	- (-)
6	- (-)	- (-)	- (-)	1 (7)	3 (3)
6a	- (-)	- (-)	- (-)	7 (32)	5 (9)
7	- (-)	- (-)	- (-)	- (-)	1 (1)
9b	8 (11)	5 (6)	3 (3)	11 (12)	9 (12)
13a	1 (1)	- (-)	- (-)	- (1)	- (-)
14b	- (-)	- (-)	- (-)	2 (9)	1 (1)
35	- (-)	- (-)	1 (1)	- (-)	- (-)
RDNC	- (-)	- (-)	- (-)	- (1)	- (-)
NOPT	- (-)	- (-)	- (-)	- (1)	- (-)
UNTY	2 (2)	- (-)	- (-)	2 (5)	3 (4)
TOTAL	11 (14)	5 (6)	8 (8)	23 (69)	23 (31)

Table 59: S. Hadar in ducks & geese on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
2	10 (12)	3 (3)	7 (7)	3 (3)	3 (3)
4	1 (1)	- (-)	- (-)	- (-)	- (-)
5	- (-)	1 (1)	- (-)	- (-)	- (-)
9	- (-)	- (-)	1 (1)	- (-)	- (-)
10	1 (1)	3 (3)	5 (5)	5 (6)	6 (6)
11	2 (2)	9 (10)	8 (8)	3 (3)	3 (3)
18	- (-)	- (-)	1 (1)	- (-)	- (-)
22	5 (11)	12 (12)	26 (28)	7 (8)	9 (10)
46	1 (1)	- (-)	- (-)	- (-)	- (-)
51	- (-)	1 (1)	1 (1)	- (-)	- (-)
58a	- (-)	1 (1)	- (-)	- (-)	- (-)
62	- (-)	- (-)	2 (2)	5 (5)	- (-)
RDNC	3 (3)	- (1)	- (1)	- (-)	- (-)
NOPT	4 (4)	- (-)	- (-)	- (-)	- (1)
UNTY	- (-)	- (-)	1 (1)	2 (2)	1 (1)
untyped	- (-)	- (1)	- (2)	- (-)	- (-)
TOTAL	27 (35)	30 (33)	52 (57)	25 (27)	22 (24)

Table 60: *Salmonella* in game birds on all premises

<i>Salmonella</i> Incidents (Isolations)	2002		2003		2004		2005		2006	
ENTERICA ENTERICA										
Agona	-	(-)	2	(2)	-	(-)	-	(-)	-	(-)
Binza	14	(20)	10	(10)	7	(7)	12	(14)	30	(31)
Derby	1	(1)	1	(1)	1	(1)	-	(-)	2	(2)
Dublin	1	(1)	-	(-)	1	(1)	-	(-)	-	(-)
Enteritidis	1	(1)	2	(2)	-	(-)	-	(-)	-	(-)
Hadar	-	(-)	1	(1)	-	(-)	-	(-)	-	(-)
Indiana	1	(1)	-	(-)	-	(-)	1	(1)	3	(4)
Infantis	-	(-)	-	(-)	1	(1)	-	(-)	-	(-)
Kedougou	-	(-)	-	(-)	-	(-)	-	(-)	6	(7)
Kottbus	-	(-)	1	(1)	-	(-)	-	(-)	2	(2)
Newport	1	(1)	1	(1)	-	(-)	-	(-)	-	(-)
Orion	7	(9)	8	(8)	2	(2)	4	(4)	4	(5)
Pullorum	3	(3)	3	(3)	-	(1)	-	(1)	-	(-)
Regent	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)
Rissen	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)
Senftenberg	-	(-)	1	(1)	-	(-)	-	(-)	2	(2)
Stanley	1	(1)	-	(-)	-	(-)	-	(-)	-	(-)
Tennessee	-	(-)	-	(-)	-	(-)	1	(1)	-	(-)
Typhimurium	3	(3)	2	(2)	3	(3)	4	(4)	30	(36)
UNSPECIFIED										
structure only	3	(5)	1	(1)	-	(-)	1	(1)	1	(1)
rough strain	-	(-)	-	(-)	-	(-)	-	(-)	1	(1)
untypable	-	(-)	-	(1)	-	(-)	-	(-)	-	(-)
TOTAL	36	(46)	33	(34)	15	(16)	23	(26)	83	(93)

Fig 44: Incidents of *Salmonella* serotypes in game birds in 2006

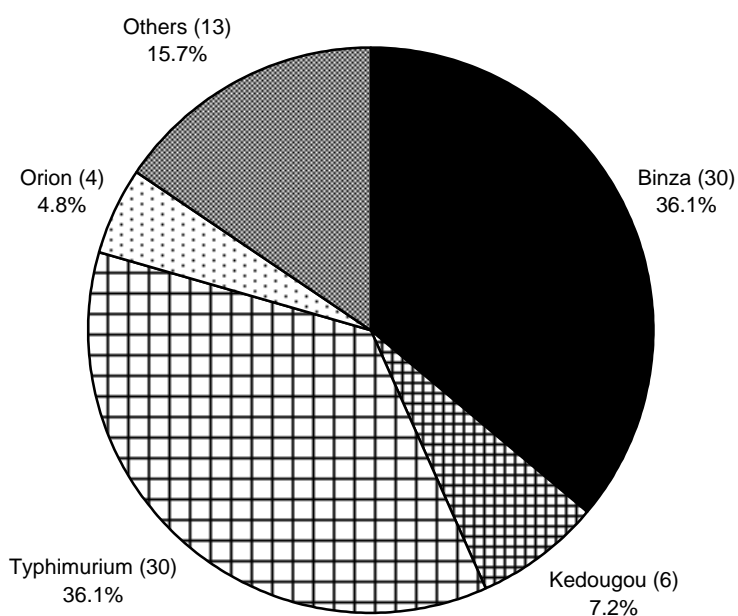


Table 61: Incidents of the top 3 *Salmonella* serotypes in game birds in 2006 as a % of all incidents compared to previous years

Serotype	2002	2003	2004	2005	2006
S. Binza %	38.9	30.3	46.7	52.2	36.1
S. Typhimurium %	8.3	6.1	20.0	17.4	36.1
S. Kedougou %	0.0	0.0	0.0	0.0	7.2
S. Orion %	19.4	24.2	13.3	17.4	4.8
Total no. incidents	36	33	15	23	83

Table 62: S. Typhimurium in game birds on all premises

Definitive Types Incidents (Isolations)	2002	2003	2004	2005	2006
2	- (-)	- (-)	- (-)	1 (1)	4 (4)
8	- (-)	- (-)	- (-)	- (-)	3 (3)
41	- (-)	- (-)	- (-)	1 (1)	- (-)
56	1 (1)	- (-)	- (-)	- (-)	1 (1)
104	1 (1)	1 (1)	1 (1)	1 (1)	- (-)
135	- (-)	- (-)	- (-)	- (-)	1 (1)
193	1 (1)	- (-)	1 (1)	1 (1)	- (-)
195	- (-)	1 (1)	- (-)	- (-)	21 (21)
U310	- (-)	- (-)	1 (1)	- (-)	- (-)
RDNC	- (-)	- (-)	- (-)	- (-)	- (2)
UNTY	- (-)	- (-)	- (-)	- (-)	- (1)
untyped	- (-)	- (-)	- (-)	- (-)	- (3)
TOTAL	3 (3)	2 (2)	3 (3)	4 (4)	30 (36)

Fig 45: Incidents of *Salmonella* serotypes in game birds (2002 - 2006)

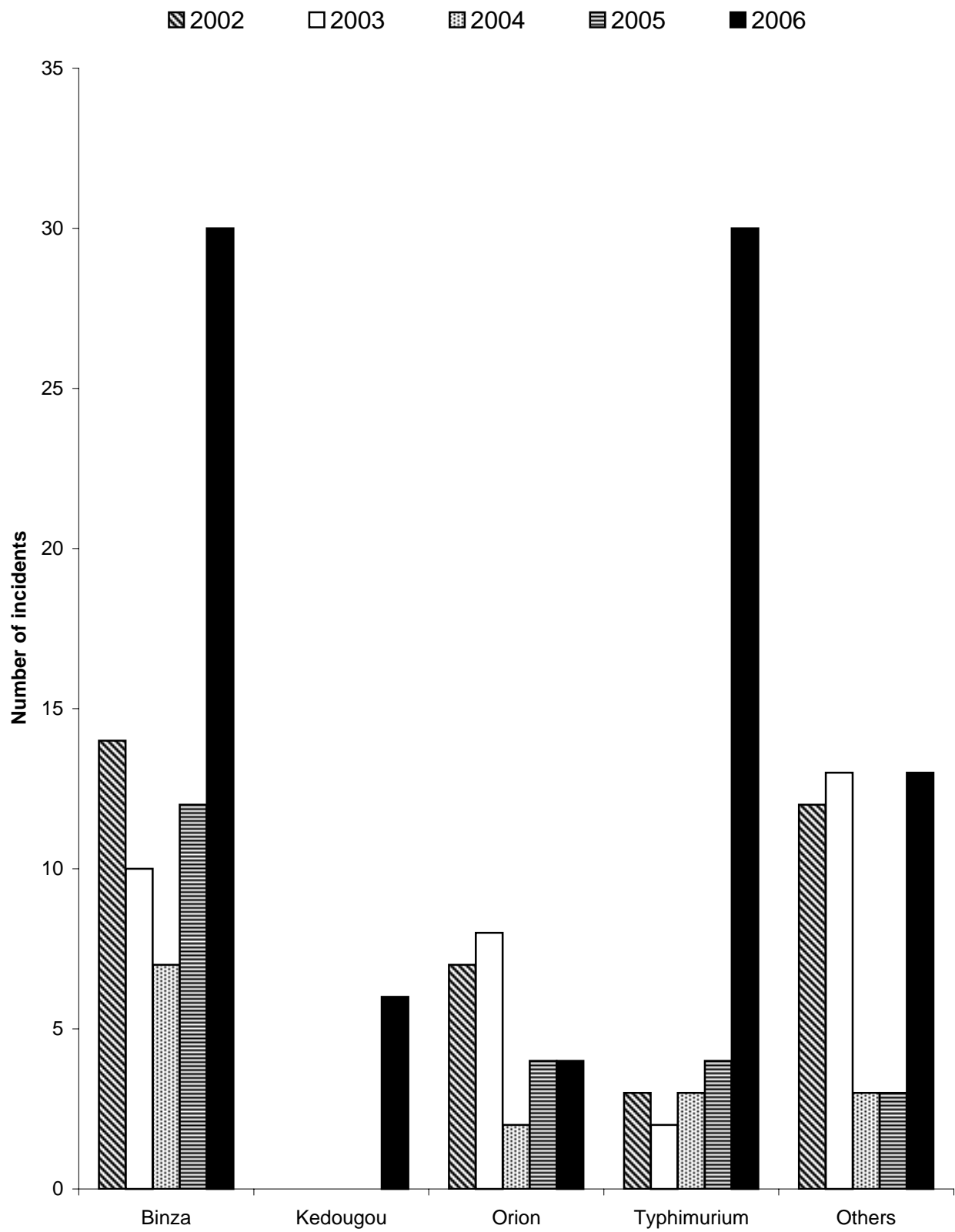


Table 63: S. Enteritidis in game birds on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
13a	1 (1)	2 (2)	- (-)	- (-)	- (-)
TOTAL	1 (1)	2 (2)	- (-)	- (-)	- (-)

Table 64: S. Pullorum in game birds on all premises

Phage Types Incidents (Isolations)	2002	2003	2004	2005	2006
7	- (-)	3 (3)	- (-)	- (-)	- (-)
11	1 (1)	- (-)	- (-)	- (-)	- (-)
NOPT	2 (2)	- (-)	- (-)	- (-)	- (-)
Untyped	- (-)	- (-)	- (1)	- (1)	- (-)
TOTAL	3 (3)	3 (3)	- (1)	- (1)	- (-)