**Appendix 2: Trend analyses**

# Contents

# 0 General introduction

## 0.1 Overview of results

**Table 1:** Overview of statistically significant trends

| Section | Group | Results |
|---|---|---|
| §1 | Pesticides in vegetables and fruits | **Increasing trend**: Azoxystrobin, Boscalid, Cyprodinil, Fludioxonyl, Pyraclostrobin, Thiacloprid<br>**Decreasing trend**: Carbendazim, Imazalil, Prochloraz (sum), Thiabendazole |
| §2 | *Listeria monocytogenes* in smoked salmon in the distribution sector | Prevalence: no trend; counts: **decreasing trend** |
| §3 | *Campylobacter* spp. in cut poultry meat with skin in distribution sector | Prevalence: no trend; counts: no trend |
| §4 | Mycotoxins in various food matrices | **Increasing trend**: T2-HT2 (Drinks, prepared foods, cereals), Patulin[†]<br>**Decreasing trend**: DON (Prepared foods, cereals), ZEA |
| §5 | Acrylamide in various food matrices | **Increasing trend**: Cereal bars; **Decreasing trend**: Prepared cereal-based foods, instant coffee |
| §6 | Inspections in slaughterhouses | **Decreasing trend** |
| §7 | Inspections in meat cutting plants | No trend |
| §8 | *Campylobacter* spp. on broiler carcasses in slaughterhouses | No trend |
| §9 | *Salmonella* spp. on pig carcasses in slaughterhouses | **Decreasing trend** |
| §§10.1 §§10.4 | Total plate count at 30°C on poultry carcasses: broilers and layers | Prevalence: **Decrease**; counts: **decreasing trend** |
| §§10.2 §§10.5 | Total plate count at 30°C on poultry carcasses: broilers | Prevalence: no trend; counts: **decreasing trend** |
| §§10.3 §§10.6 | Total plate count at 30°C on poultry carcasses: layers | Prevalence: **Decrease**; counts: no convergence |
| §11 | Antibiotic resistance of *Salmonella* Typhimurium on carcasses and meat: poultry and pigs | Poultry: no trend; Pigs: no trend |

**Table 1:** Overview of statistically significant trends (Continued)

| Section | Group | Results |
|---|---|---|
| §12 | *Globodera* spp. in soil samples | Prevalence: no trend; counts: no trend; viability: no trend |
| §13 | *Erwinia amylovora* in plants, plant parts and propagation material | Period 2011–2013: no trend for plants and plant parts, **decreasing trend** for propagation material |
| §14 | *Phytophthora ramorum* in plants, plant parts and propagation material | Globally no trend; **decreasing trend** for plants and plant parts |
| §15 | Inspection results | **Decreasing trend**: Self-checking system, Animal health, Infrastructure, equipment and hygiene, Mandatory notification, Smoking ban, Transport<br>**Increasing trend**: Animal welfare, Traceability, Packaging and labelling (including trade norms) |

[†]Also significant seasonal variation (higher in $4^{th}$ quarter)

## 0.2 Interpretation of statistical analysis results

Standard individual statistical analyses are reported as abbreviated tables in order to reduce the length of this appendix. The first line reports the type of regression used (`bysort code: nbreg ...`). This is followed by the individual analysis(es), which indicate (if required) the group for which the results is reported (`-> code = 1`), which repeats the regression model (`Negative binomial regression`) and the sample size (`Number of obs = 4`). A significant `P>|z|` (*i.e.* a value $\leqslant 0.05$) and a positive `Coef.` indicates an increasing trend, a significant `P>|z|` and a negative `Coef.` indicates an decreasing trend.

```
. bysort code: nbreg detect year if year>2005 & code!=17, exp(samples) nolog

-------------------------------------------------------------------------------
-> code = 1
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .1542752    .066639     2.32   0.021     .0236652    .2848852
```

# 1 Pesticides in vegetables and fruits

## 1.1 Summary

**Table 2:** Trend analysis pesticides in vegetables and fruits

| code | pesticide | coefficient | p |
|---|---|---|---|
| 1 | Azoxystrobin | 0.154 | 0.021 |
| 2 | Boscalid | 0.099 | 0.001 |
| 3 | Captan | | ns |
| 4 | Carbendazim (sum) | -0.382 | < 0.001 |
| 5 | Chlorpropham (sum) | | ns |
| 6 | Chlorpyrifos | | ns |
| 7 | Cypermethrin (sum) | | ns |
| 8 | Cyprodinil | 0.160 | 0.010 |
| 9 | Difenoconazole | | ns |
| 10 | Dimethomorph | | ns |
| 11 | Dithiocarbamates (sum) | | ns |
| 12 | Fenhexamid | | ns |
| 13 | Fludioxonyl | 0.166 | < 0.001 |
| 14 | Imazalil | -0.180 | 0.007 |
| 15 | Imidacloprid | | ns |
| 16 | Iprodione | | ns |
| 17 | L-cyhalothrin | | ns |
| 18 | Pirimicarb (sum) | | ns |
| 19 | Prochloraz (sum) | -0.171 | 0.023 |
| 20 | Propamocarb (sum) | | ns |
| 21 | Pyraclostrobin | 0.137 | 0.010 |
| 22 | Spinosad (sum) | | ns |
| 23 | Tebuconazole | | ns |
| 24 | Thiabendazole | -0.230 | < 0.001 |
| 25 | Thiacloprid | 0.197 | 0.001 |
| 26 | Triadimefon (sum) | | ns |
| 27 | Trifloxystrobin | | ns |

All analyses performed with negative binomial regression, except L-cyhalothrin, for which Poisson regression was used (no convergence with negative binomial); ns = not significant

## 1.2 Negative binomial regression

```
. bysort code: nbreg detect year, exp(samples) nolog

-> code = 1
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .1542752    .066639     2.32   0.021     .0236652    .2848852

-> code = 2
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .0998993     .03019     3.31   0.001      .040728    .1590706

-> code = 3
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .1000008   .1218644     0.82   0.412     -.138849    .3388507

-> code = 4
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.3824017    .089408    -4.28   0.000    -.5576382   -.2071652

-> code = 5
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.1437608   .1225539    -1.17   0.241     -.383962    .0964404

-> code = 6
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0774817   .0499553    -1.55   0.121    -.1753922    .0204288

-> code = 7
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0326061   .1299558    -0.25   0.802    -.2873149    .2221026

-> code = 8
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .1608755    .062514     2.57   0.010     .0383503    .2834008

-> code = 9
Negative binomial regression                      Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.1496442   .1189572    -1.26   0.208     -.382796    .0835076
```

```
-> code = 10
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   -.042255   .0747465    -0.57   0.572    -.1887555    .1042454

-> code = 11
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.1131235   .0782555    -1.45   0.148    -.2665015    .0402545

-> code = 12
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0192938   .0525896    -0.37   0.714    -.1223676    .0837799

-> code = 13
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .1731908   .0529973     3.27   0.001      .069318    .2770636

-> code = 14
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.1799837   .0667615    -2.70   0.007    -.3108338   -.0491337

-> code = 15
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .0166091   .0628637     0.26   0.792    -.1066015    .1398198

-> code = 16
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0270999   .0826009    -0.33   0.743    -.1889946    .1347948

-> code = 17

Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .0943872   .0592815     1.59   0.111    -.0218024    .2105768

-> code = 18
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0649257   .0816229    -0.80   0.426    -.2249036    .0950523

-> code = 19
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
```

```
-------------+------------------------------------------------------------------
        year |  -.1706643   .0752399    -2.27   0.023    -.3181318   -.0231968

-> code = 20
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0573825   .0526269    -1.09   0.276    -.1605294    .0457644

-> code = 21
Negative binomial regression                    Number of obs   =          3
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .1374413   .0530176     2.59   0.010     .0335287     .241354

-> code = 22
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |    .102989   .0772879     1.33   0.183    -.0484926    .2544706

-> code = 23
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0593604    .057399    -1.03   0.301    -.1718603    .0531395

-> code = 24
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.2304888   .0501372    -4.60   0.000    -.3287559   -.1322217

-> code = 25
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .1971825   .0611051     3.23   0.001     .0774186    .3169463

-> code = 26
Negative binomial regression                    Number of obs   =          4
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0240453   .0865101    -0.28   0.781    -.1936019    .1455113

-> code = 27
Negative binomial regression                    Number of obs   =          3
      detect |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |   .2859915   .1595345     1.79   0.073    -.0266904    .5986734
```

# 2 *Listeria monocytogenes* in smoked salmon in the distribution sector

## 2.1 *Listeria monocytogenes* prevalence

| Year | Total | Non-conform | Conform |
|---|---|---|---|
| 2008 | 201 | 1 | 200 |
| 2009 | 199 | 2 | 197 |
| 2011 | 203 | 1 | 202 |
| 2012 | 200 | 0 | 200 |
| 2013 | 120 | 0 | 120 |

```
. nbreg notconform year, exp(total) nolog
Negative binomial regression                    Number of obs   =          5
 nietconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.3946029    .327748    -1.20   0.229    -1.036977    .2477714
```

**No significant trend detected**

## 2.2 *Listeria monocytogenes* counts

```
. bysort jaar: summ cfu2
             |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
        2008 |       201    129.1841     1763.03         0      25000
        2009 |       199    8.532663    41.19537         0        530
        2011 |       203    8.876847    52.61442         0        750
        2012 |       200       4.545    2.908655         0          9
        2013 |       120       4.225    2.911763         0          9
-------------+--------------------------------------------------------
```

```
. nbreg cfu2 i.year, nolog
Negative binomial regression                    Number of obs   =        923
        cfu2 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |
       2009  |  -2.717337    .153517   -17.70   0.000    -3.018225   -2.416449
       2011  |  -2.677792   .1526642   -17.54   0.000    -2.977008   -2.378576
       2012  |  -3.347211   .1549872   -21.60   0.000     -3.65098   -3.043441
       2013  |  -3.420219   .1803879   -18.96   0.000    -3.773773   -3.066665
```

| Year | Mean CFU | Ranking† |
|---|---|---|
| 2008 | 129.18 | a |
| 2009 | 8.83 | b |
| 2011 | 8.87 | b |
| 2012 | 4.55 | c |
| 2013 | 4.23 | c |

† Means followed by the same letter do not differ from each other

**A significantly decreasing trend of count is detected**

# 3 *Campylobacter* spp. in cut poultry meat with skin in the distribution sector

## 3.1 *Campylobacter* spp. prevalence

| Year | Total | Present | Absent |
|---|---|---|---|
| 2008 | 92 | 7 | 85 |
| 2009 | 122 | 27 | 95 |
| 2010 | 119 | 7 | 112 |
| 2011 | 119 | 22 | 97 |
| 2012 | 115 | 9 | 106 |
| 2013 | 59 | 3 | 56 |

```
. nbreg notconform year, exp(total) nolog
Negative binomial regression                      Number of obs   =          6
  notconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.1229992   .1461909    -0.84   0.400    -.4095281    .1635298
```

**No trend detected. No convergence when analysed with year as factor variable.**

## 3.2 *Campylobacter* spp. counts

```
. bysort jaar: summ cfu2
             |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
        2008 |        92    101.2283    692.0002          0       6600
        2009 |       122    218.2541    1454.545          0      16000
        2010 |       119    35.72269    206.1646          0       2200
        2011 |       119    462.1176    3029.327          0      30000
        2012 |       115    87.13913    489.1464          0       4900
        2013 |        59    57.15254    325.4774          0       2500
-------------+--------------------------------------------------------
```

```
. nbreg cfu2 i.year, nolog
Negative binomial regression                      Number of obs   =        626
        cfu2 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |
       2009  |    .768282   .2885367     2.66   0.008     .2027604    1.333804
       2010  |  -1.041592   .2904339    -3.59   0.000    -1.610832   -.4723519
       2011  |   1.518442     .29006     5.23   0.000     .9499344    2.086949
       2012  |  -.1498719   .2923875    -0.51   0.608     -.722941    .4231971
       2013  |  -.5716541   .3488031    -1.64   0.101    -1.255296    .1119875
```

| Year | Mean CFU | Ranking† |
|---|---|---|
| 2008 | 101.23 | bc |
| 2009 | 218.25 | ab |
| 2010 | 35.72 | d |
| 2011 | 462.12 | a |
| 2012 | 87.14 | c |
| 2013 | 57.15 | cd |

† Means followed by the same letter do not differ from each other

**No trend detected despite significant differences between the years**

# 4 Mycotoxins in various food matrices

## 4.1 Aflatoxins

```
. bysort matn2: regr ub date

-> matn2 = Fruit  Number of obs =   13307
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |  -.0005018    .000544    -0.92   0.356    -.0015682    .0005646

-> matn2 = Groenten  Number of obs =      71
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |  -.0017262   .0012176    -1.42   0.161    -.0041552    .0007029

-> matn2 = Specerijen  Number of obs =    1600
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |   -.000078   .0001492    -0.52   0.601    -.0003707    .0002146

-> matn2 = bereid  Number of obs =    1820
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |  -.0000196   .0000317    -0.62   0.536    -.0000817    .0000425

-> matn2 = granen  Number of obs =     967
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |  -.0000703   .0000464    -1.51   0.130    -.0001615    .0000208

-> matn2 = zaden  Number of obs =    2663
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |   .0010092   .0010789     0.94   0.350    -.0011064    .0031247
```

**No statistically significant trends are detected at MAT N2 level**

## 4.2 DON

```
. bysort matn2: nbreg ub date, nolog

-> matn2 = Dranken
```

```
Negative binomial regression                      Number of obs   =         50
          ub |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        date |  -.0002902   .0003091    -0.94   0.348     -.000896    .0003157

-> matn2 = bereid
Negative binomial regression                      Number of obs   =        283
          ub |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        date |  -.0001401    .000059    -2.38   0.018    -.0002557   -.0000245

-> matn2 = granen
Negative binomial regression                      Number of obs   =        361
          ub |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        date |   -.000524   .0000898    -5.83   0.000       -.0007   -.0003479
```

**A significant decreasing trend is observed for two food matrices**

## 4.3 Fumonisins

```
. bysort matn2: regr ub date

-> matn2 = bereid  Number of obs =     744
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        date |  -.0024062   .0085131    -0.28   0.778    -.0191188    .0143064

-> matn2 = granen  Number of obs =    1289
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        date |   .0052535    .009694     0.54   0.588    -.0137643    .0242712
```

**No significant trends were detected**

## 4.4 T2-HT2

```
. bysort matn2: nbreg ub datum, nolog

-> matn2 = bereid
Negative binomial regression                      Number of obs   =        292
          ub |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        date |   .0013738   .0001337    10.27   0.000     .0011117    .0016359

-> matn2 = granen
Negative binomial regression                      Number of obs   =        640
          ub |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        date |   .0009613   .0000683    14.07   0.000     .0008274    .0010952

. twoway (scatter ub date, sort msymbol(smcircle_hollow)), by(matn2)
```

**A significant increasing trend is observed for all food matrices**

## 4.5 Ochratoxin

```
. bysort matn2: regr ub date

-> matn2 = Dranken  Number of obs =      69
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |  -.0000282   .0000656    -0.43   0.669    -.0001591    .0001027

-> matn2 = Fruit  Number of obs =      51
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |   .0003872   .0004005     0.97   0.338    -.0004176    .0011921

-> matn2 = Specerijen  Number of obs =      70
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |  -.0201574   .0150964    -1.34   0.186    -.0502817     .009967

-> matn2 = bereid  Number of obs =     114
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        dats |  -.0000314   .0000371    -0.84   0.400    -.0001049    .0000422

-> matn2 = granen  Number of obs =     122
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |  -.0000717    .000071    -1.01   0.315    -.0002124    .0000689

-> matn2 = melk  Number of obs =       2
note: date omitted because of collinearity

-> matn2 = thee  Number of obs =      49
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        date |  -.0016605   .0009242    -1.80   0.079    -.0035199    .0001988
```

**No significant trends are detected**

## 4.6 Patulin

```
. zip lb date2 ib(4).season, inflate(_cons) nolog
Zero-inflated Poisson regression                  Number of obs   =         92
          lb |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
lb           |
       date2 |   .0002128   .0001037     2.05   0.040     9.66e-06     .000416
             |
      season |
           1 |  -1.523382   .3341917    -4.56   0.000    -2.178385   -.8683778
           2 |  -2.230729   .3597471    -6.20   0.000     -2.93582   -1.525637
           3 |  -1.070231   .1657333    -6.46   0.000    -1.395062   -.7453997
```

**A significantly increasing trend as well as a seasonal variation is detected (significantly higher values during the period October-December)**

## 4.7 Zea – Corn chips

```
. regr ub date2  Number of obs =      55
          ub |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
       datum2 |  -.0098881   .0014408    -6.86   0.000    -.0127779   -.0069982
```

**A significant decreasing trend is detected**

# 5 Acrylamide in various food matrices

**Table 3:** Summary

| Food matrix | Coefficient (non-conform) |
|---|---|
| Almond | ns† |
| Babyfood | ns |
| Prepared cereal-based foods | $-1.85$ ($p = 0.025$) |
| Beer | ns |
| Bread | ns |
| Crisps | ns |
| Chocolate | ns |
| Belgian fries | ns |
| Cereal bars | $+1.69$ ($p = 0.004$) |
| Cookies | ns |
| Coffee | ns |
| Breakfast cereals | ns |
| Instant chicory | ns |
| Instant coffee | $-0.88$ ($p = 0.006$) |
| Paprika powder | ns |
| Gingerbread | ns |
| Popcorn | ns |

† ns = not significant

```
. bysort matrix: firthlogit nonconform year2, nolog

-> matrix = Almond  Number of obs    =         16
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
       year2 |   2.381228   1.607849     1.48   0.139    -.7700986    5.532554

-> matrix = Babyfood  Number of obs    =         91
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
       year2 |   -.204078    .126524    -1.61   0.107    -.4520605    .0439045

-> matrix = Prepared cereal-based foods  Number of obs    =         36
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
       year2 |  -1.849838   .8244702    -2.24   0.025     -3.46577    -.233906
```

```
-> matrix = Beer  Number of obs   =         20
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |   .0027805   .3318149     0.01   0.993    -.6475647    .6531258

-> matrix = Bread  Number of obs   =        122
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |   .0514138   .1213491     0.42   0.672    -.1864261    .2892537

-> matrix = Crisps  Number of obs   =         68
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |  -.0810909   .1792872    -0.45   0.651    -.4324874    .2703055

-> matrix = Chocolate  Number of obs   =         26
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |  -.1273145   .3401308    -0.37   0.708    -.7939586    .5393296

-> matrix = Belgian fries  Number of obs   =        124
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |   .1822055   .1220491     1.49   0.135    -.0570063    .4214172

-> matrix = Cereal bars  Number of obs   =         35
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |   1.693284   .5853729     2.89   0.004     .5459738    2.840593

-> matrix = Cookies  Number of obs   =         87
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |   .0732936   .1495247     0.49   0.624    -.2197694    .3663566

-> matrix = Coffee  Number of obs   =         56
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |  -.2468171   .4113257    -0.60   0.548    -1.053001    .5593664

-> matrix = Breakfast cereals  Number of obs   =         92
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |  -.1615993   .1246225    -1.30   0.195    -.4058549    .0826562

-> matrix = Instant chicory  Number of obs   =         57
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |   .3238353   .2028066     1.60   0.110    -.0736583     .721329

-> matrix = Instant coffee  Number of obs   =         53
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |  -.8846497   .3198639    -2.77   0.006    -1.511571   -.2577279

-> matrix = Paprika powder  Number of obs   =         60
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
```

```
       year2 |   .0222457   .1491823     0.15   0.881    -.2701463    .3146377

-> matrix = Gingerbread  Number of obs   =         59
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |   .0135848   .3680323     0.04   0.971    -.7077452    .7349149

-> matrix = Popcorn  Number of obs   =         59
     conform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       year2 |  -.2208915   .2241065    -0.99   0.324    -.6601321    .2183491
```

# 6 Inspections in slaughterhouses

| Year | Total | Conform | Non-conform |
|---|---|---|---|
| 2008 | 248 | 169 | 79 |
| 2009 | 270 | 198 | 72 |
| 2010 | 225 | 138 | 87 |
| 2011 | 193 | 116 | 77 |
| 2012 | 175 | 98 | 77 |
| 2013 | 188 | 134 | 54 |

```
. xtset id
       panel variable:  id (unbalanced)

. xtnbreg nonconform year, re exposure(total) nolog
Random-effects negative binomial regression     Number of obs      =       408
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .1246972    .026646     4.68   0.000     .0724719    .1769225
```

**A statistically significant increasing trend of the number of non-conform cases is observed**

# 7 Inspections in cutting plants

| Year | Total | Conform | Non-conform |
|---|---|---|---|
| 2008 | 516 | 468 | 48 |
| 2009 | 460 | 399 | 61 |
| 2010 | 478 | 431 | 47 |
| 2011 | 454 | 389 | 65 |
| 2012 | 436 | 377 | 59 |
| 2013 | 428 | 393 | 35 |

```
. nbreg nonconform year, exp(total) nolog
Negative binomial regression                    Number of obs   =          6
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0015116   .0515527     0.03   0.977    -.0995298     .102553
```

**No trend is detected**

# 8 *Campylobacter* spp. on poultry carcasses in slaughterhouses

| Year | Total | Present | Absent |
|---|---|---|---|
| 2008 | 236 | 80 | 156 |
| 2009 | 268 | 92 | 176 |
| 2010 | 354 | 153 | 201 |
| 2011 | 337 | 136 | 201 |
| 2012 | 252 | 102 | 150 |
| 2013 | 205 | 76 | 129 |

```
. nbreg present year, exp(total) nolog
Negative binomial regression                    Number of obs   =          6
     present |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        jaar |   .0246582   .0251253     0.98   0.326    -.0245865     .073903
```

**No trend is observed**

# 9 *Salmonella* spp. on pig carcasses in slaughterhouses

| Year | Total | Present | Absent |
|---|---|---|---|
| 2008 | 281 | 41 | 240 |
| 2009 | 840 | 115 | 725 |
| 2010 | 671 | 59 | 612 |
| 2011 | 276 | 31 | 245 |
| 2012 | 535 | 58 | 477 |
| 2013 | 380 | 32 | 348 |

```
. nbreg present year, exp(total) nolog
Negative binomial regression                    Number of obs   =          6
     present |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.0921639    .039552    -2.33   0.020    -.1696844   -.0146434
```

**A significant decreasing trend is detected**

# 10 Total plate count at 30°C on poultry carcasses: broilers and layers

## 10.1 Prevalence – broilers + layers

| Year | Total | Conform | Non-conform |
|---|---|---|---|
| 2009 | 593 | 351 | 242 |
| 2010 | 699 | 577 | 122 |
| 2011 | 499 | 401 | 98 |
| 2012 | 329 | 262 | 67 |
| 2013 | 380 | 339 | 41 |

```
. nbreg nonconform i.year, exp(total) nolog
Negative binomial regression                          Number of obs   =          5
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |
       2010  |   -.849373   .1110358    -7.65   0.000    -1.066999   -.6317468
       2011  |  -.7313819   .1197343    -6.11   0.000    -.9660569   -.4967069
       2012  |  -.6951085   .1380493    -5.04   0.000    -.9656801   -.4245368
       2013  |  -1.330343    .168886    -7.88   0.000    -1.661353   -.9993321
```

**A significant decreasing trend, which is possibly due to the sudden decline in 2013?**

## 10.2 Prevalence – broilers

| Year | Total | Conform | Non-conform |
|---|---|---|---|
| 2009 | 271 | 198 | 73 |
| 2010 | 396 | 369 | 27 |
| 2011 | 285 | 242 | 43 |
| 2012 | 190 | 164 | 26 |
| 2013 | 137 | 120 | 17 |

```
. nbreg nonconform year, exp(total) nolog
Negative binomial regression                          Number of obs   =          5
 nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.1322125   .1246305    -1.06   0.289    -.3764837    .1120588
```

**No significant trend is observed**

## 10.3 Prevalence – layers

| Year | Total | Conform | Non-conform |
|---|---|---|---|
| 2009 | 322 | 153 | 169 |
| 2010 | 303 | 208 | 95 |
| 2011 | 214 | 159 | 55 |
| 2012 | 139 | 98 | 41 |
| 2013 | 243 | 219 | 24 |

```
. nbreg nonconform i.year, exp(total) nolog
Negative binomial regression                    Number of obs   =          5
 nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+----------------------------------------------------------------
        jaar |
       2010  |  -.5152031   .1282321    -4.02   0.000    -.7665335   -.2638727
       2011  |    -.71399   .1552385    -4.60   0.000    -1.018252   -.4097282
       2012  |   -.576249   .1740902    -3.31   0.001    -.9174596   -.2350384
       2013  |  -1.670355   .2181372    -7.66   0.000    -2.097896   -1.242814
```

**Decreasing trend, possibly due to much lower value in 2013?**

## 10.4 Counts – broilers + layers

```
. bysort type year: summ cfu
       broil |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
        2009 |       271     8369280    3.27e+07      3900   3.20e+08
        2010 |       396    1.39e+07    1.69e+08       400   3.00e+09
        2011 |       285     5750146    5.66e+07      1000   9.00e+08
        2012 |       190     1497372     7849309      4500   7.70e+07
        2013 |       137    557496.4     1358776       210   1.20e+07
-------------+--------------------------------------------------------

         lay |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
        2009 |       322    8.44e+07    2.77e+08     21000   3.00e+09
        2010 |       303    6.03e+07    2.61e+08     55000   3.00e+09
        2011 |       214    2.10e+07    9.42e+07     34000   8.60e+08
        2012 |       139     1729856     4985893     16000   4.90e+07
        2013 |       243     2963373     9226559       680   4.90e+07
-------------+--------------------------------------------------------

. nbreg cfu year, nolog
Negative binomial regression                    Number of obs   =       2500
         cfu |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.8988608   .0310901   -28.91   0.000    -.9597963   -.8379253
```

**Decreasing trend**

## 10.5 Counts – broilers

```
. nbreg cfu year if type=="broil", nolog
Negative binomial regression                    Number of obs   =       1279
         cfu |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        jaar |  -.7878778   .0581918   -13.54   0.000    -.9019317    -.673824
```

**Decreasing trend**

## 10.6 Counts – layers

```
. nbreg cfu jaar if type=="lay"
Iteration 96:  log likelihood = -20949.746  (backed up)
--Break--
```

**No convergence**

# 11 Antibiotic resistance *Salmonella* Typhimurium on carcasses and meat: poultry and pigs

## 11.1 Poultry

```
. list
     +---------------------------+
     | year   threeplus   totaal |
     |---------------------------|
  1. | 2007          31       51 |
  2. | 2008          16       48 |
  3. | 2009          14       18 |
  4. | 2010          32       32 |
  5. | 2011          21       47 |
     |---------------------------|
  6. | 2012           4        7 |
  7. | 2013           1        7 |
     +---------------------------+

. nbreg threemore year, exp(total) nolog
Negative binomial regression                    Number of obs   =          7
   threemore |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0446378    .098751    -0.45   0.651    -.2381862    .1489106
```

## 11.2 Pigs

| Year | Threeplus | Total |
|---|---|---|
| 2007 | 111 | 172 |
| 2008 | 68 | 88 |
| 2009 | 71 | 111 |
| 2010 | 37 | 41 |
| 2011 | 43 | 103 |
| 2012 | 72 | 105 |
| 2013 | 28 | 58 |

```
. nbreg threeplus year, exp(total) nolog
Negative binomial regression                    Number of obs   =          7
   threeplus |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        year |  -.0446841   .0373473    -1.20   0.232    -.1178835    .0285153
```

**No trend is observed**

# 12 *Globodera* spp. in soil samples

## 12.1 *Globodera* spp. prevalence

| Year of harvest | Total | Non-conform |
|---|---|---|
| 2010 | 388 | 10 |
| 2011 | 342 | 9 |
| 2012 | 367 | 16 |
| 2013 | 368 | 14 |

```
nbreg nonconform yearharv, exp(total) nolog
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    yearharv |   .1617816   .1276299     1.27   0.205    -.0883685    .4119317
```

No trend is observed

## 12.2 *Globodera* spp. counts

```
. nbreg cfu year, nolog
Negative binomial regression                    Number of obs   =       1448
         cfu |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .2935012    .232411     1.26   0.207     -.162016    .7490184
```

No trend is observed

## 12.3 *Globodera* spp. viability

| Year | Total | Not viable |
|---|---|---|
| 2011 | 13 | 4 |
| 2012 | 18 | 2 |
| 2013 | 18 | 4 |

```
. nbreg notviable year, exp(total) nolog
Negative binomial regression                    Number of obs   =          3
   notviable |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.1627112   .3985409    -0.41   0.683     -.943837    .6184146
```

No trend is observed

# 13 *Erwinia amylovora* in plants, plant parts and propagation material

```
. nbreg present year, exp(total) nolog
Negative binomial regression                    Number of obs   =          8
     present |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.0047354   .1819965    -0.03   0.979     -.361442    .3519711
```

```
. nbreg present year if type=="plant", exp(total) nolog
Negative binomial regression                    Number of obs   =          5
     present |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .1851441   .0449645     4.12   0.000     .0970154    .2732729

. nbreg present year if type=="plant" & year>2010, exp(total) nolog
Negative binomial regression                    Number of obs   =          3
     present |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0467847   .0797423     0.59   0.557    -.1095074    .2030767

. nbreg present year if type=="propagate", exp(total) nolog
Negative binomial regression                    Number of obs   =          3
     present |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.9312172   .1840365    -5.06   0.000    -1.291922   -.5705123
```

**Overall no trend is observed. A significant increasing trend is observed when plant + plant materials and the period 2009-2013 is analysed (no trend is observed for the period 2011-2013). A significant decreasing trend is observed for propagation material for the period 2011-2013.**

# 14 *Phytophthora ramorum* in plants, plant parts and propagation material

```
. list
     +-------------------------------------------------------+
     | year      matrix    total    present   mat2   year2 |
     |-------------------------------------------------------|
  1. | 2009       plant      242         59      1      -4 |
  2. | 2010       plant      225         19      1      -3 |
  3. | 2011       plant      130          3      1      -2 |
  4. | 2012       plant      100          0      1      -1 |
  5. | 2013       plant       88          2      1       0 |
     |-------------------------------------------------------|
  6. | 2009   propagate        .          .      2      -4 |
  7. | 2010   propagate        1          0      2      -3 |
  8. | 2011   propagate      114         14      2      -2 |
  9. | 2012   propagate       94         11      2      -1 |
 10. | 2013   propagate      100         26      2       0 |
     +-------------------------------------------------------+

. poisson present i.mat2##c.year2, exp(total) nolog
     present |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      2.mat2 |  -2854.254   471.7064    -6.05   0.000    -3778.781   -1929.726
        year |  -1.003586   .1585477    -6.33   0.000    -1.314334   -.6928387
             |
 mat2#c.year |
          2  |    1.41991   .2345701     6.05   0.000      .960161    1.879659
```

**There is a significant decreasing trend for plants + plant material and a significant increasing trend for propagation material. There is a higher prevalence in plants than in propagation material.**

# 15 Inspection results

| Scope | Year | Total | Conform | Non-conform |
|---|---|---|---|---|
| Self-checking system | 2010 | 12061 | 6395 | 5666 |
| Self-checking system | 2011 | 17431 | 10978 | 6453 |
| Self-checking system | 2012 | 17217 | 11182 | 6035 |
| Self-checking system | 2013 | 17904 | 13086 | 4818 |
| Waste management | 2010 | 4029 | 3769 | 260 |
| Waste management | 2011 | 5810 | 5266 | 544 |
| Waste management | 2012 | 4264 | 3853 | 411 |
| Waste management | 2013 | 3933 | 3600 | 333 |
| Animal health | 2010 | 2889 | 2768 | 121 |
| Animal health | 2011 | 2865 | 2751 | 114 |
| Animal health | 2012 | 1653 | 1619 | 34 |
| Animal health | 2013 | 1476 | 1452 | 24 |
| Animal welfare | 2010 | 10483 | 10235 | 248 |
| Animal welfare | 2011 | 9704 | 9471 | 233 |
| Animal welfare | 2012 | 9067 | 8835 | 232 |
| Animal welfare | 2013 | 10942 | 10531 | 411 |
| Epidemiological surveillance | 2010 | 4498 | 4375 | 123 |
| Epidemiological surveillance | 2011 | 3785 | 3677 | 108 |
| Epidemiological surveillance | 2012 | 3506 | 3428 | 78 |
| Epidemiological surveillance | 2013 | 3663 | 3545 | 118 |
| Phytosanitary - physical control | 2010 | 2925 | 2819 | 106 |
| Phytosanitary - physical control | 2011 | 3045 | 2893 | 152 |
| Phytosanitary - physical control | 2012 | 3226 | 3039 | 187 |
| Phytosanitary - physical control | 2013 | 3172 | 3144 | 28 |
| Medicines and company guidance | 2010 | 5663 | 5532 | 131 |
| Medicines and company guidance | 2011 | 4046 | 3968 | 78 |
| Medicines and company guidance | 2012 | 3916 | 3819 | 97 |
| Medicines and company guidance | 2013 | 5491 | 5370 | 121 |
| Infrastructure, equipment en hygiene | 2010 | 36929 | 26533 | 10396 |
| Infrastructure, equipment en hygiene | 2011 | 42116 | 29676 | 12440 |
| Infrastructure, equipment en hygiene | 2012 | 44752 | 32939 | 11813 |
| Infrastructure, equipment en hygiene | 2013 | 48458 | 36831 | 11627 |
| Mandatory notification | 2010 | 16470 | 15874 | 596 |
| Mandatory notification | 2011 | 20881 | 20430 | 451 |
| Mandatory notification | 2012 | 21272 | 20885 | 387 |
| Mandatory notification | 2013 | 23260 | 22961 | 299 |
| Pesticides | 2010 | 3320 | 2920 | 400 |
| Pesticides | 2011 | 2930 | 2555 | 375 |
| Pesticides | 2012 | 2718 | 2387 | 331 |
| Pesticides | 2013 | 2545 | 2218 | 327 |
| Smoking ban | 2010 | 12475 | 10893 | 1582 |
| Smoking ban | 2011 | 10371 | 9668 | 703 |
| Smoking ban | 2012 | 10623 | 9985 | 638 |
| Smoking ban | 2013 | 11695 | 11159 | 536 |
| Traceability (including identification and registration) | 2010 | 26151 | 24108 | 2043 |
| Traceability (including identification and registration) | 2011 | 29593 | 27376 | 2217 |
| Traceability (including identification and registration) | 2012 | 29300 | 26859 | 2441 |

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| Scope | Year | Total | Conform | Non-conform |
|---|---|---|---|---|
| Traceability (including identification and registration) | 2013 | 33302 | 30493 | 2809 |
| Packaging and labelling (including trade norms) | 2010 | 8232 | 7506 | 726 |
| Packaging and labelling (including trade norms) | 2011 | 10355 | 9376 | 979 |
| Packaging and labelling (including trade norms) | 2012 | 9582 | 8483 | 1099 |
| Packaging and labelling (including trade norms) | 2013 | 9954 | 8852 | 1102 |
| Packaging material | 2010 | 1198 | 1135 | 63 |
| Packaging material | 2011 | 2404 | 2292 | 112 |
| Packaging material | 2012 | 634 | 604 | 30 |
| Packaging material | 2013 | 573 | 533 | 40 |
| Transport | 2010 | 1578 | 1526 | 52 |
| Transport | 2011 | 1470 | 1432 | 38 |
| Transport | 2012 | 1517 | 1483 | 34 |
| Transport | 2013 | 1563 | 1537 | 26 |

```
. bysort scope: nbreg nonconform year, exp(total) nolog

-> scope = Self-checking systems
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.1722675   .0201191    -8.56   0.000    -.2117002   -.1328349

-> scope = Waste management
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0804439   .0597557     1.35   0.178    -.0366752     .197563

-> scope = Animal health
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.3315237   .0779258    -4.25   0.000    -.4842554    -.178792

-> scope = Animal welfare
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |    .151107   .0423556     3.57   0.000     .0680916    .2341224

-> scope = Epidemiological surveillance
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0286493   .0520137     0.55   0.582    -.0732957    .1305943

-> scope = Phytosanitary - physical control
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.3095869    .323483    -0.96   0.339    -.9436019     .324428

-> scope = Medicines and company guidance
```

```
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0028349   .0406576     0.07   0.944    -.0768525    .0825222

-> scope = Infrastructure, equipment and hygiene
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.0596347   .0186508    -3.20   0.001    -.0961896   -.0230799

-> scope = Mandatory notification
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.3312961   .0339694    -9.75   0.000    -.3978749   -.2647173

-> scope = Pesticides
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0146377   .0235411     0.62   0.534    -.0315019    .0607773

-> scope = Smoking ban
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.3228141   .0498885    -6.47   0.000    -.4205937   -.2250346

-> scope = Traceability
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0340921   .0131638     2.59   0.010     .0082916    .0598927

-> scope = Packaging and labelling
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0869926   .0225316     3.86   0.000     .0428315    .1311537

-> scope = Packaging material
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |   .0819314   .0678963     1.21   0.228    -.0511429    .2150057

-> scope = Transport
Negative binomial regression                    Number of obs   =          4
  nonconform |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        year |  -.2173046   .0737674    -2.95   0.003    -.3618861   -.0727231
```

**A significant decreasing trend of non-conform observations is detected in case of: Self-checking systems, Animal health, Infrastructure, equipment and hygiene, Mandatory notification, Smoking ban, Transport. A significant increasing trend of non-conform observations is detected in case of: Animal welfare, Traceability, Packaging and labelling (including trade norms)**