

## Dutch slower growing chickens require less antibiotics than fast-growing chickens

### Overview

Data collected by the Dutch broiler industry demonstrates that chickens from fast-growing breed types require more than three times more antibiotics than slower growing chickens (AVINED, 2019) (see Figure 1).

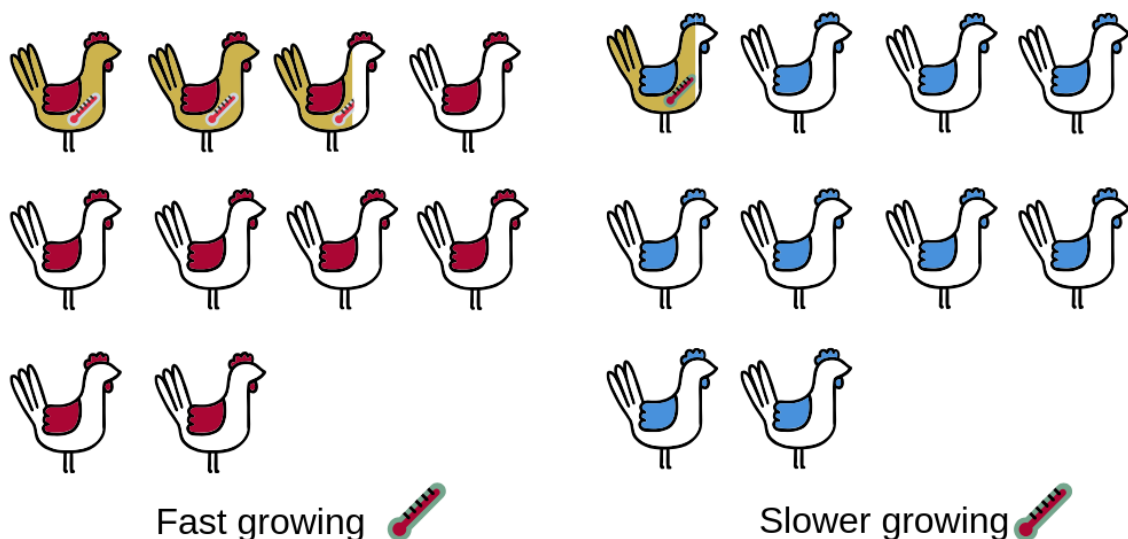
The Dutch industry has increased the number of slower growing chickens in recent years (see Figure 1) following a campaign that increased public pressure and consumer concern which led to a change in supermarket requirements, due to the welfare issues associated with fast growth (Jansen, 2014; Neilson, 2016).

The data collected separates fast and slower growing breed types giving an overview of the differences that result from different growth rates. This data shows that improving the health and welfare of chickens by moving to slower growing breed types has other benefits, such as a decline in the need for antibiotics (AVINED, 2019).

This could be attributed to reduced immune competence in fast-growing chickens, either due to stress or loss of genetic traits, as breeding birds for fast growth negatively compromises the immune system (Nilsson 2003; Mauck et al., 2005; Van der Most et al., 2011). This is important to antibiotic resistance as these birds require more antibiotics (Van der Most et al., 2011).

There is also evidence that a combination of reducing stocking density and increasing age at slaughter reduce the need for antibiotics even further.

### Antibiotic use compared



**Figure 1** Slower growing chickens are 3 times less likely to need antibiotics as those bred to grow faster (AVINED, 2019).

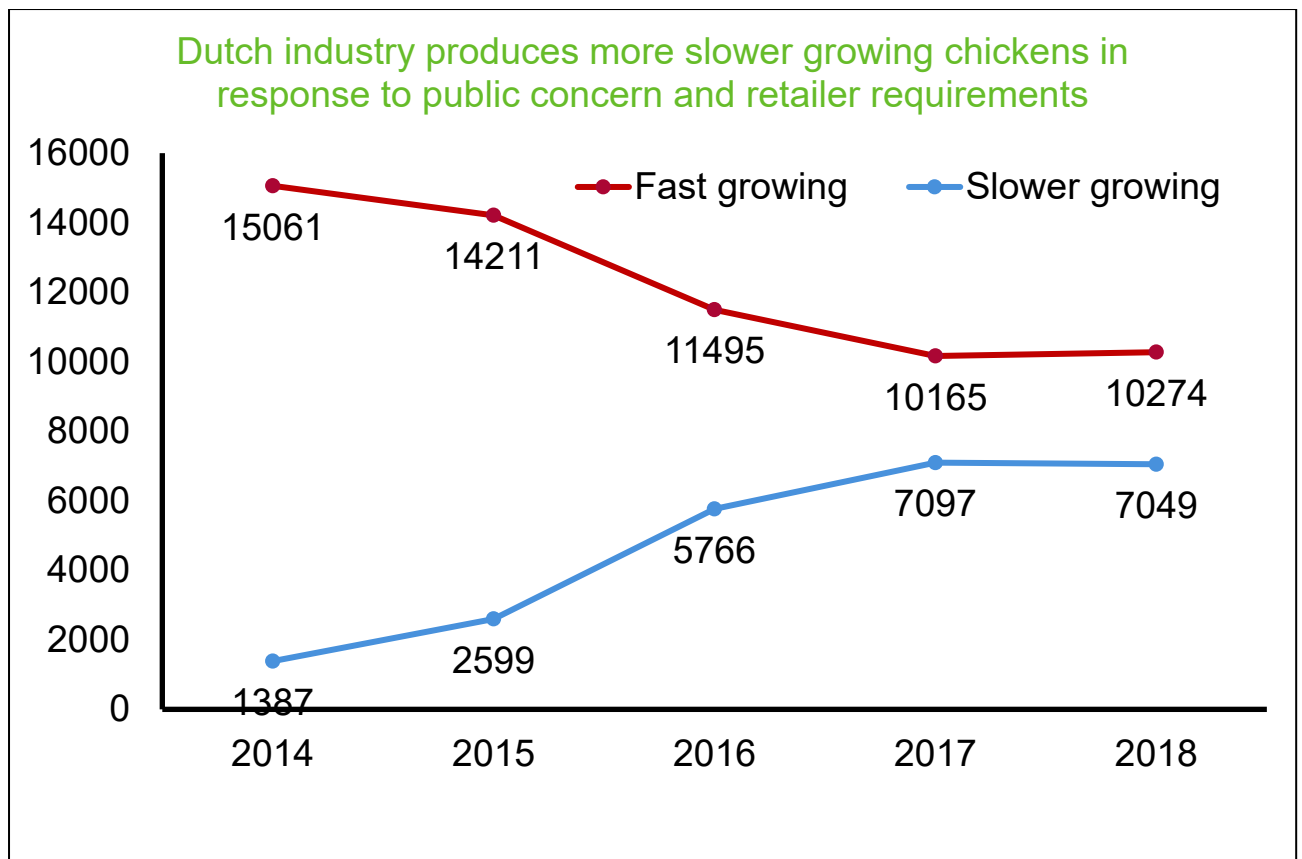
## Welfare concerns for fast-growing chickens

Fast-growing chickens have been bred based on growth speed for over 50 years (Griffin & Goddard, 1994). Fast-growing chickens, such as Cobb 500, and Ross 308, have been developed by geneticists in order for the chicken to reach slaughter weight earlier (Siegal et al., 1997), minimising cost and increasing production rates.

These chickens grow from 50 grams to over 2 kilograms in six weeks or less, growing on average 50 grams a day (Neilson, 2016). This allows producers to offer more chicken at a cheaper cost. Although slower growing chickens are not as efficient in terms of feed conversion, mortality rates are lower per flock than fast-growing chickens (Thornton, 2016). The breeding for more efficient feed conversion and fast growth over high physiological welfare (Scheele, 1997), could be associated with fast growing chickens being highly susceptible to both acute and chronic heart failure (Olkowski et al., 1997; 1998), which has resulted in high levels of mortality (Olkowski, 2007).

The majority of chickens produced for meat are fast-growing breed types, leading to a number of welfare concerns (Bessei, 2006). Breeding with a focus on growth speed results in ascites and skeletal problems (Griffin, 1994). Fast-growing breed types result in higher mortality than slower growing chickens, due to metabolic disorders that cause ascites and Sudden Death Syndrome (Bessei, 2006; Meseret, 2016). These are common heart-related problems faced by broilers nowadays (Olkowski & Classen, 1998; Korte et al., 1999). Further health concerns include lameness, skeletal weakness, breast and leg skin lesions (Meseret, 2016), contact dermatitis, (Bessei, 2006), and a high and frequent use of antibiotics.

In addition to the welfare problems related to fast growing chickens, the industry face losses due to mortality as culling is increased (Meseret, 2016). These problems can be decreased by moving towards using more slower growing chickens (Bessei, 2006). Following a campaign aimed at increasing the use of slower growing chickens, the Netherlands has cut its selling of fast-growing breeds types in supermarkets in half (Neilson, 2016). The main supermarkets, including Lidl, Albert Heijn, and Jumbo pledged in 2015 to only sell slow growing chickens by the end of the year (Neilson, 2016). Although the number of fast-growing chickens is decreasing (See Figure 2), they remain the majority of chickens raised for human consumption as many are exported (65-70% in 2014) (Neilson, 2016).



**Figure 2** Slower growing chicken flock numbers have increased, whilst fast-growing have decreased, in response to Dutch retailer requirements for slow growing birds. This followed public campaigns against fast-growing chickens on welfare grounds. Fast-growing birds are still reared, mainly for the export market. See appendix for actual figures.

### Exploded chicken

In 2013 and 2014, the market for slower growing chickens grew due to public pressure as a result of the campaign 'Plofkip'<sup>1</sup>, meaning exploded chicken, led by animal welfare group Wakker Dier, that targeted supermarkets to stop the use of fast-growing chickens (Thornton, 2016; Neilson, 2016). Unilever responded within three months of the campaign, ending the selling of the 'plofkip,' and in 2015 Lidl, Jumbo, and Albert Heijn, all high-profile supermarkets, agreed to drop the 'plofkip' (Neilson, 2016).

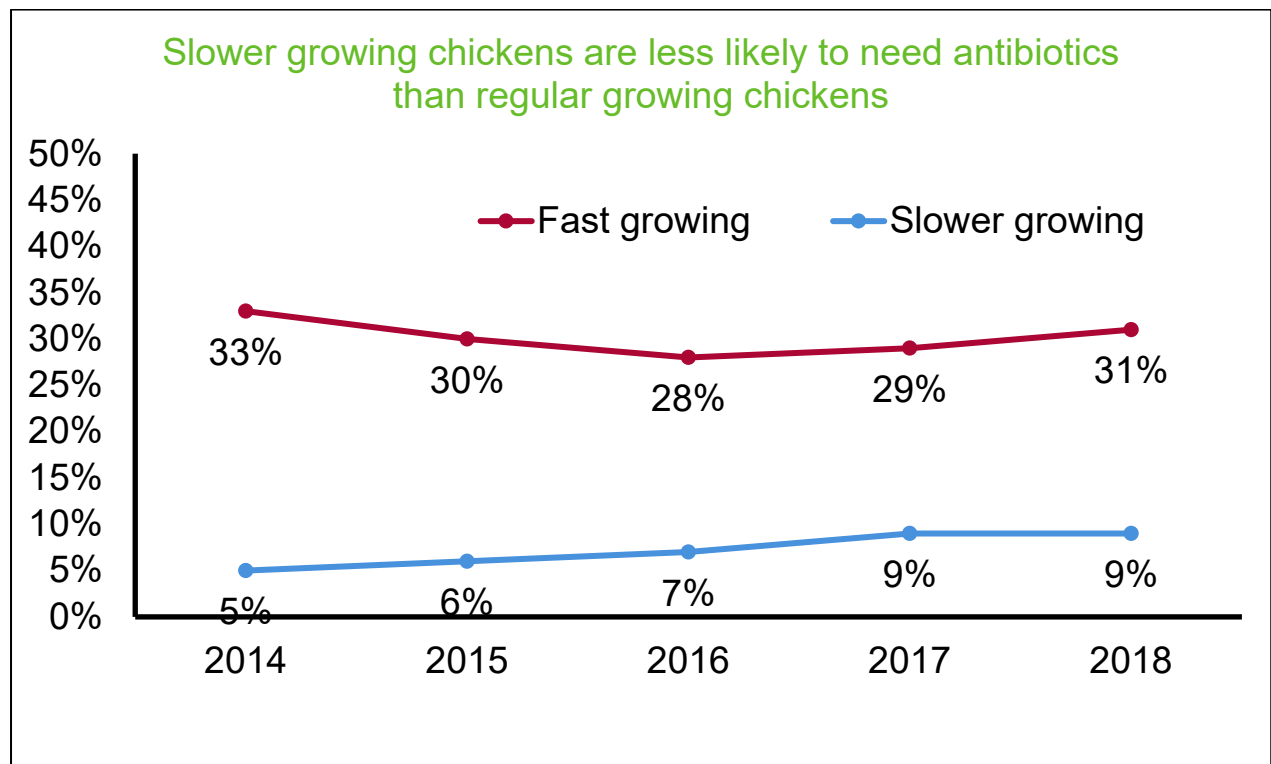
Slower growing chickens such as Label Rouge also face a number of health benefits to their faster-growing counterparts including less myopathy lesions resulting in white striping (Thornton, 2016). Label Rouge is responsible for 33% of chickens sold for food in France and specialise in slower growing chickens raised on pasture and was developed after the second world war in opposition to industrialization (Fanatico & Born, 2002). These chickens live more than twice as long as fast-growing birds who live for six weeks or less, which has huge benefits for their organs as sudden death, leg problems and ascites occur less (Fanatico & Born, 2002). Many chickens are slaughtered younger, between 32-40 days (de Jong et al., 2012). Fast-growing chickens face three times more

<sup>1</sup> See <https://www.wakkerdier.nl/campagnes/plofkip/> for examples of the images used in this campaign.

difficulty in walking (Thornton, 2016), cardiac problems, hock burns, and respiratory problems from ammonia pollution (Neilson, 2016).

### Slow growing chickens are less likely to need antibiotics

The 'plofkip', in which the chicken grows to 2 kilograms in 42 days, typically of the Ross or Cobbs breeds, faces many health issues due to its fast growth, in comparison to slower growing breeds such as Hubbards and Rowan Rangers who require less antibiotics (Neilson, 2016). A lower percentage of slow growing chickens needed antibiotics than regular growing chickens in 2014 – 2018 and has remained consistent (see Figure 3).



**Figure 3** More fast-growing chicken flocks needed antibiotics than slower growing chicken flocks from 2014 to 2018. See appendix for tables.

### Chickens kept at lower stocking density may also be less likely to need antibiotics

The stocking density used for fast-growing chickens (42Kg/m<sup>2</sup> (8.60 lbs/ft<sup>2</sup>)) is higher than that used for slower growing chickens (Thornton, 2016). Higher welfare brands such as Beter Leven in the Netherlands, and Organic and Free Range in Britain require slower growing breed types, lower stocking densities, and enrichment such as covered outdoor ranges.

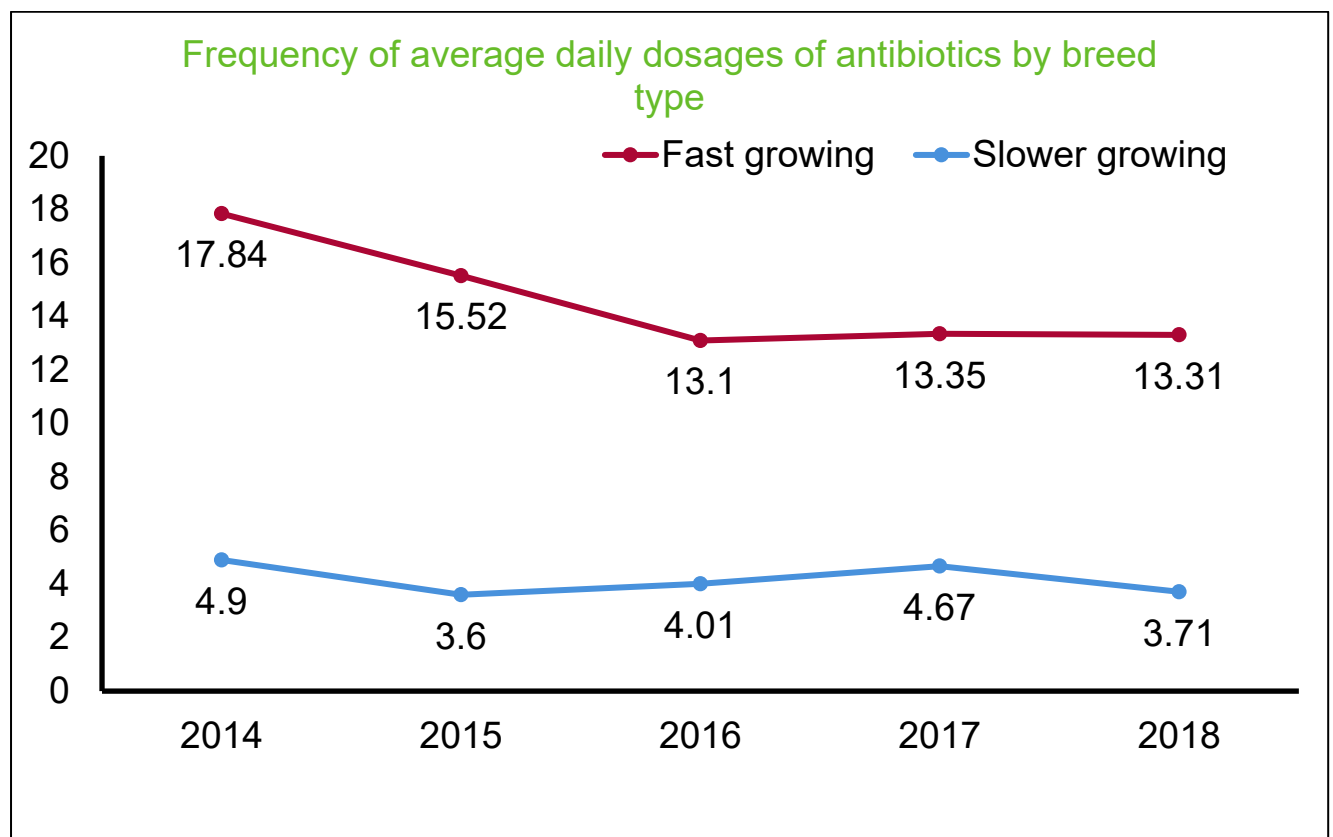
Welfare has been found to decrease as density increases (Houshmand et al., 2012), with lower densities (6 and 15 kg/m<sup>2</sup>) being better than middle (23, 33, 35, and 47 kg/m<sup>2</sup>), and high density resulting in the lowest welfare (Buijs et al., 2009).

In 2018, only 9% of slower growing chickens required antibiotics (see Figure 3). In 2014, only 5% needed antibiotics, which may be due to a higher proportion of slower growing chickens being Better Leven, with a higher welfare standard and a 56 day life span, more space and a covered outdoor range (van Horne, 2017). Therefore, it may be possible to reduce antibiotic use further by providing chickens with higher welfare and an enriched environment.

### Slow growing chickens also need antibiotics less often

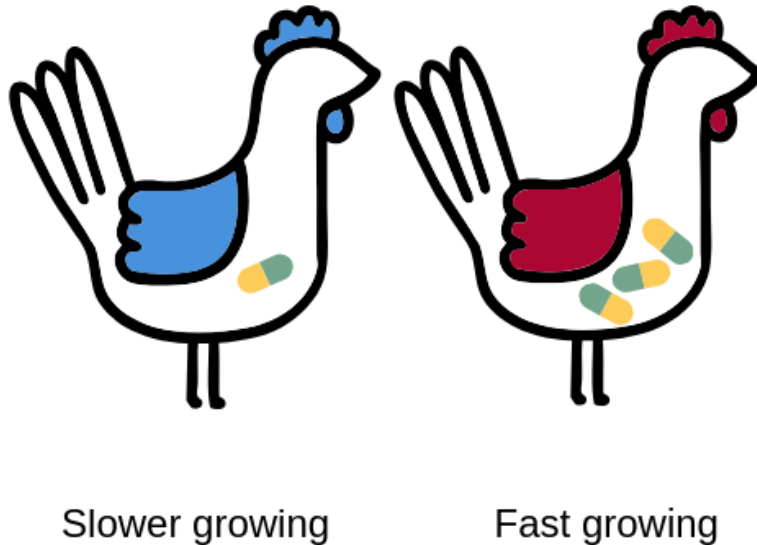
Improving management in the poultry sector has been used as a strategy to reduce the use of antibiotics in both the Dutch and British Poultry sector. The British Poultry Sector's Antimicrobial Stewardship Programme aims to decrease the use of antibiotics on farms in order to combat antimicrobial resistance which has resulted in a 50% yearly decrease in the use of antibiotics since 2013, due to better management strategies (Compassion in World Farming, 2017). Further, antibiotic use has dropped by 71% from 2012 to 2016 in the poultry sector (Compassion in World Farming, 2017; see also British Poultry Council 2017).

In addition to improving management strategies, the Dutch poultry industry have further reduced antibiotic use in previous years by increasing the number of slower growing chickens (See figures 3 and 4). Slow growing chickens need on average fewer daily dosages of antibiotics than regular growing chickens (See figure 4). This is based on an equation by AVINED that calculated if a chicken lived for 365 days, how many of these days would the chicken receive antibiotics (AVINED, 2017). The amount of these calculated days that antibiotics were administered to chickens has decreased from 17 days in 2014 to 10 days in 2018, showing that antibiotics are used less often in more recent years. The Dutch industry collect data that separates fast and slower growing chickens, allowing the effect growth has on antibiotic use to be determined. This demonstrates that by increasing the number of slower growing chickens, antibiotic use is further reduced.



**Figure 4** Slow growing chickens needed on average fewer daily dosages of antibiotics than regular growing chickens (AVINED, 2019).

Slow growing chickens need 1/3 less antibiotics



**Figure 5** Slower growing chickens were given antibiotics three times less often a year than fast-growing chickens from 2014 to 2018 based on if a chicken lived for 365 days. See appendix for table.

### Conclusion

The data from the Dutch broiler industry shows that slower growing chickens require less antibiotics, less frequently than their faster growing counterparts (AVINED, 2019). An additional benefit to moving towards slower growing breed types are the many health and welfare benefits that are apparent in slow growing chickens, as many common defects linked with faster growth are less apparent (Bessei, 2006; Korte et al., 1999; Meseret, 2016; Olkowski & Classen, 1998).

Although steps have been taken to reduce antibiotic use in many EU countries, for example in the United Kingdom (Compassion in World Farming, 2017), the Dutch industry data demonstrates that we can do more. Keeping slower growing chickens, and in turn providing them with less stressful environments that benefit their welfare, is a simple next step that could potentially reduce antibiotics by a further three times and possibly more.

We urge all countries in the EU to follow the Netherlands example and to record data separated on breed type and the system in which chickens are reared to enable the differences in antibiotic use to be tracked. In the Netherlands too, additional data on systems and stocking densities would be invaluable for the further development of strategies for reducing antibiotic resistance whilst improving animal welfare.

Many EU Member States take pride in placing animal welfare high on the agenda, and this can be demonstrated in the publics' concern over how animals are treated. By moving towards using slower growing chickens, and providing additional space and enrichment,

European countries can remain up to date with animal welfare advances, while dramatically reducing antibiotic use.

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## Appendix

Table 1.

Year	DDDAs	Number of chicken flocks	Number of chicken flocks with antibiotics	Percentage of chicken flocks without antibiotics
<b>2014</b>				
Slower growing	4.9	1387	65	95%
Fast-growing	17.84	15061	4931	67%
Total	17.14	16448	4996	70%
<b>2015</b>				
Slower growing	3.6	2599	145	94%
Fast-growing	15.52	14211	4248	70%
Total	14.17	16810	4393	74%
<b>2016</b>				
Slower growing	4.01	5766	414	93%
Fast-growing	13.1	11495	3180	72%
Total	10.62	17261	3594	79%
<b>2017</b>				
Slower growing	4.67	7097	622	91%
Fast-growing	13.35	10165	2972	71%
Total	10.3	17262	3594	79%
<b>2018</b>				
Slow growing	3.71	7049	663	91%
Fast-growing	13.31	10274	3171	69%
Total	9.94	17323	3834	78%

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