



The fight against structural defects of poultry is becoming more and more important.

Plants reduce defects of poultry meat

A research highlights the effects of plant extracts on vascularization and protection of muscle cells

In context of the poultry meat market which offers consumers more and more cut or processed products, technological quality is becoming a priority, as well as the fight against structural defects in meat. The latter increased in the field due to genetic evolution towards increasingly heavy strains. The Mega Tender is an innovation of the CCPA Group (Conseils et Compétences en Productions Animales) from Janzé, France, which makes it possible to reduce these defects and meet the expectations of all the links of the production chain: producer, feed manufacturer, slaughterhouse, distributor, final consumer.

By Philippe Caldier

Three main issues dominate in a survey conducted in 2017 by the CCPA Group among 22 actors in the pork and poultry meat sectors, questioned about the quality problems they encounter: carcass and meat visual aspect (64%), health quality (50%) and fillets defects (50%). "Quality is a complex con-

cept," said Nicolas Hubert, CCPA Group's Poultry Specialist at the Poultry Symposium held in Paris in 2018. Every link in the industry – slaughterers, processors, distributors, consumers – has indeed a different vision of this issue: product appearance and nutritional value for the consumer,

carcass yield and meat for the slaughterer, functional properties and technological efficiencies for the processors, visual aspect and conservation for distributors.

Increasing prevalence

Specifically, there are three main structural defects of the processed

meat: "White Stripping" (white streaks in the muscles), "Spaghetti Meat" (destroyed muscle fibers without cohesion) and "Wooden Breast" (hard, pale and convex meat) (Tab. 1). "If the causes of structural defects in meat are multifactorial (nutritional factors, growth factors, blood factors,

Problems

Tab. 1 : The three main quality defects of poultry meat and their consequences

Defect	Symptoms	Consequences
White Stripping	Appearance of white streaks developing parallel to the axis of muscle fibers	<ul style="list-style-type: none"> ■ Degraded visual appearance ■ Bad image ■ Risk of refusal of purchase of the consumer and dereferencing of the distributor ■ Media risk
Spaghetti Meat	Loss of cohesion of muscle fibers, destructuring	<ul style="list-style-type: none"> ■ Decrease in processing capacity ■ Downgrading of fillets
Wooden Breast	Very hard fillets, convex meat, pale with viscous surface and presence of petechia	<ul style="list-style-type: none"> ■ Economic loss for slaughterhouse / processor

Source: CALDIER

living conditions), there is an increase in their prevalence with the weight of the fillet," says Karine Bébin (Fig. 1), CCPA Group Poultry Specialist, who adds that for the last fifty years, genetic evolution has been towards heavier, faster-growing and better-yielding poultry strains (from 1957 to 2014, the average weight of the fillet increased from 280 g to 473 g, and fillet yield from 13.5 to 21.5%).

In trials conducted by the CCPA Group in 2017 (strain Ross 308, males, 3.5 kg), the prevalence of fillets with "White Stripping" and "Wooden Breast" defects increases steadily with the weight of the fillets, passing from 26.1% for fillets lower than 400 g to 72% for fillets heavier than 470 g.

In a presentation made during the 12th JRA (Journées de la recherche avicole-Poultry Research Days), Cécile Berri of INRA Nouzilly (France) presented the preliminary results of a survey started in 2016 in French



Fig. 1: Karine Bébin is CCPA Group's Poultry Specialist.

slaughterhouses and which shows from the study of 40 batches that the fillets of standard and semi-heavy chicken strains (1.9 to 2.3 kg) are affected by muscle defects. The "White Stripping" reached the totality of

the studied batches and the proportion of fillets affected by this defect is between 33 and 90%. The "Wooden Breast" is detected in 98% of batches and affects 10 to 70% of the fillets. The proportion of "Spaghetti" fillets is far

from negligible, with 65% of affected lots in which the share of affected fillets can reach 20%. The observations of the Italian Pettraci (Fig. 2) go in the same direction, the proportion of fillets with associated symptoms of "White Stripping" and "Wooden Breast" rising from 20% with poultry of average weight (live weight lower than 3 kg, and mainly females) to 49% for the heavier chickens (males over 3 kg).

In a presentation made in 2018, the American researcher Casey M. Owens from the University of Arkansas estimates that "White Stripping" affects 35 to 40% of heavy US chickens (about 3.8 kg) and 10 to 20% of 3 kg chickens. According to this same researcher, the "Wooden Breast" would affect 20 to 35% of US chickens over 3.8 kg, and 5 to 10% of 3 kg chickens. "These defects in the quality of meat have multiple consequences," says Karine Bébin: a visual degrada-

Advertisement

FTDM linear - Filling flow divider with double knife

The filling flow divider with double knife is concipated for the production of round or longish products of any type.

The maximum output is at 1000 portions per minute. Due to the linerar technology the double knives are free-positionable. The 4-row filling flow divider with 4 rotors guarantees an „accurate-to-a-gram“ product feeding. The knife countours are fourfold designed so that diameters from 10 – 32mm can be produced.



IFFA

Visit us!
Trade fair Frankfurt
May 04- 09th, 2019
Hall: 8.0
Booth: D44/E39



**Heinrich Frey
Maschinenbau GmbH**
89542 Herbrechtingen
Germany
Telefon: +49 7324 1720
info@frey-online.com
www.frey-online.com

FREY
Maschinenbau

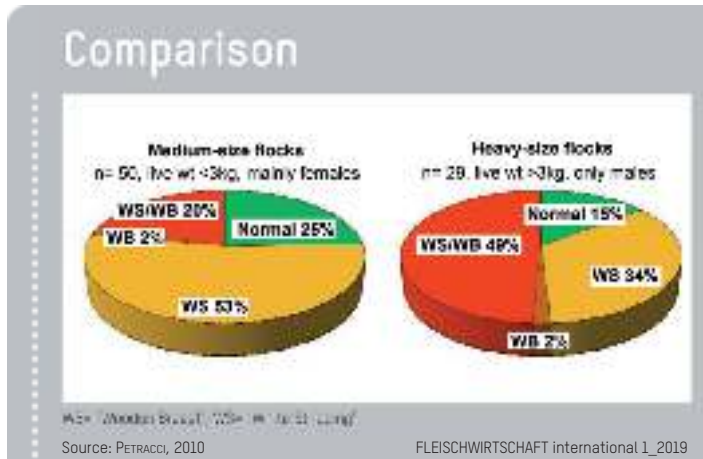


Fig. 2: The proportion of fillets with associated defects are rising from poultry of average weight lower 3 kg to heavier chickens with more than 3 kg.

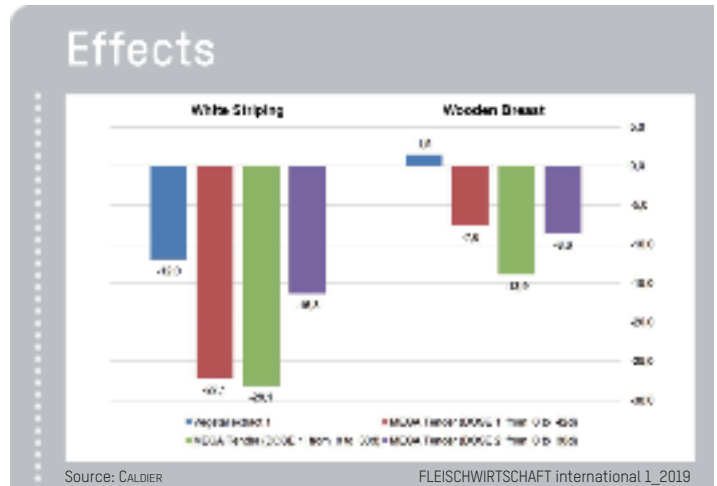


Fig. 3: Percentage reduction of chicken breast defects

tion leading to a bad image for the consumer, a decrease in nutritional values, a reduction in processing capacity and therefore economic losses for industrial processors due to lower sales of this debased meat.

Protect muscle cells

As Marie Bourin from the ITAVI (Technical Institute of Poultry) of Nouzilly, France, said during the JRA 2017 "the levers of action to control these defects in meat quality are on the farms, even if

the consequences are only visible at the slaughterhouse, once the animals are plucked, eviscerated or even cut".

At the last CCPA Poultry Symposium, Karine Bébin reminded that a temporary feed restriction of poultry is a way to limit the quality defects of meat. "There is a positive effect at 21 and 28 days of a feed restriction over the 13–21 day period, but there is no residual effect beyond 28 days on structural defects," says Karine Bébin who adds that these defects of degeneration of the muscle appear very early from 15–20 days. There are different strategies (nutritional levels, feed presentation, feed program ...) to limit growth at the critical period to limit these defects but often related to a decrease in performance, she added.

The research conducted over the last ten years by the CCPA Group has made it possible to highlight the effects of selected plant extracts on the vascularization and on the protection of muscle cells. This resulted in the development of a feed additive named Mega Tender, an innovative nutritional solution based on various plant extracts with multiple properties (vascularizing, protective and anti-oxidant) acting in synergy and improving the visual and technological quality of the meat.

The trials conducted by CCPA in its experimental station on Ross males at 42 days show the effectiveness of Mega Tender which reduces both the defects of "White Stripping" and "Wooden

Breast" (Fig. 3). "The combination of plant extracts and anti-oxidants has reduced the prevalence of "White Stripping" by nearly 30% and "Wooden Breast" by almost 14%," says Karine Bébin, who points out that these trials were carried out in a context of risks.

With proven benefits (a return on investment of between five and 16 in case of non-use of the affected fillets), the feed additive significantly reduces the meat quality defects encountered especially on fast-growing birds and helps poultry processors to keep their quality guarantees to their customers and consumers. Keeping quality will result in a very positive image of poultry from consumer's sight.



Philippe Caldier

graduated in agriculture, is a French independent journalist with more than 30 years experience in

global agricultural reports, mainly in animal production. He regularly collaborates today with around 15 European specialized agricultural and livestock magazines such as Krafftutter, Pig Progress, AllAboutFeed, KVMET (Finland), Contoterzista (Italy), Mundo Ganadero (Spain) and Forst&Technik (Germany). He is also actively developing a consulting activity to help companies to promote their image and their expertise abroad.

Author's address

Philippe Caldier, 11, rue du Vieux Marché, 21140 Semur-en-Auxois, France, ph@caldier.fr

FOCUS BEST PRACTICE

IFFA 2019
from 4 to 9 May
Hall 12.1 C79

Delicious poultry sausage thanks to Liq-Würz plant-based cream

Through the use of premium rapeseed oil as well as special physical components and seasoning, our new plant-based cream for poultry sausages offers unique advantages:

- Up to 20% replacement of animal fat possible
- Safe, standardised production
- Firm texture and harmonious mouthfeel
- Typical poultry sausage flavour

AVO-WERKE · August Beisse GmbH · Industriestraße 7 · 49191 Belm/Germany
Phone +49 (0)5406 5080 · Fax +49 (0)5406 4126 · export@avo.de · www.avo.de

Advertisement