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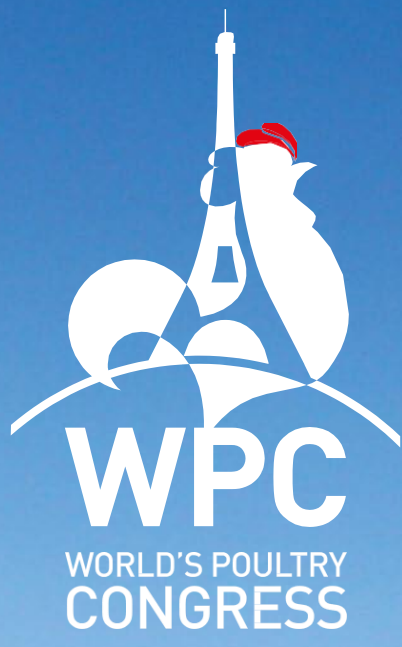
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BIRD-E: A NEW DEVICE TO MEASURE THE FEED INTAKE, FEEDING BEHAVIOR AND GROWTH IN POULTRY

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In poultry production, feed represents more than 60% of the total production cost. So, it's important to find out strategies to improve feed efficiency through better nutrition and appropriate genetic selection. Apart from the economic impact, a better feed efficiency is also associated to a lower environmental impact.

Calculation of feed efficiency implies to record feed intake and growth. Until recently, to obtain these individual measures, animals had to be reared in cage, not allowing them to express their natural feeding and social behaviors. Electronic feeders are thus essential tools to record individual intake of animals raised in group and on floor, i.e. in conditions comparable to usual rearing conditions, especially for organic or label rouge systems. Several devices have been developed, but none include all the required characteristics, i.e. feed intake and body weight measures, from hatch to slaughter, without a corridor for the access to feed. INRAE, together with ITAVI and SYSAAF thus designed BIRD-e (Bird Individual Ration Dispenser-electronic), a feed station meeting all these needs.

BIRD-e is a circular feeder with 8 free accesses to the feed. It can feed 100 animals as soon as they hatch. One access is composed of a tray and a feed tube ending on a manger. Both are fixed on scales, giving respectively the weight of the animal and the feed weight. The presence of an animal is detected thanks to a microchip recognized by an antenna attached above each access. All data obtained with scales and antennas are synchronized and transmitted to an internal computer.

We used this feed station to test the adaptation of two genotypes of chickens (slow-growing chickens and rapid growing chickens) to sustainable diets. Apart from performances showing that animals were able to adapt to alternative diets without major effects on performances (detailed results on performances are presented in Berger et al. abstract), daily results showed that in some cases, transitions between starter, grower or finisher diets should be moved forward, as performances start to decrease several days before the transition.

As our new tool also give us access to information such as number, length or intensity of meals per day and intervals between meals, we can finely study transition phases and thus detect whether some behavioral profiles of birds are connected to differences in adaptation to transitions, even with similar final performances.

ITAVI: Institut Technique de l'Aviculture

SySAAF: Syndicat des Sélectionneurs Avicoles et Aquacoles Français

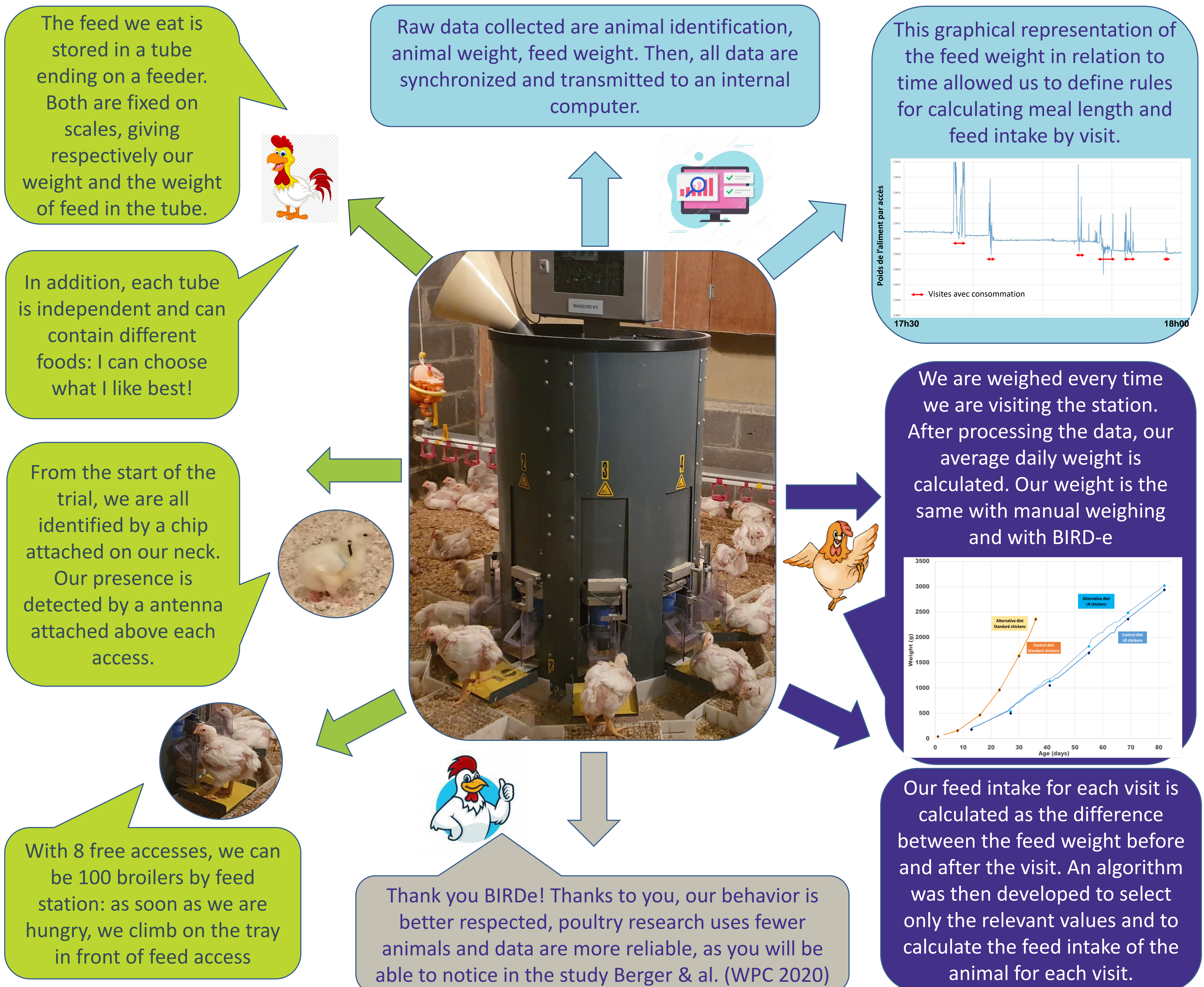
BIRD-e: a new device to measure the feed intake, feeding behavior and growth in poultry

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Context and objectives

The measurement of animals' feed intake is essential to improve feed efficiency. Until recently, to obtain individual measures, animals had to be reared in individual cages, not allowing them to express their natural feeding and social behaviors. Electronic feed stations are thus essential tools to record individual intake of animals raised in group and on floor, i.e. in conditions more comparable to usual rearing conditions.

Several devices have been developed, but none include all the required characteristics, i.e. feed intake and body weight measures, from hatch to slaughter, without a corridor for the access to feed. INRAE, together with ITAVI and the partners of the UMT BIRD thus designed **BIRD-e (Bird Individual Ration Dispenser-electronic)**, a feed station meeting all these needs.



Conclusion

The development of the BIRD-e is a real innovation for research, opening up new perspectives for genetic selection, feeding behavior and more generally animal nutrition. As our new tool also gives us access to information such as number, length or intensity of meals per day and intervals between meals, we can finely study transition phases and thus detect whether some behavioral profiles of birds are connected to differences in adaptation to transitions, even with similar final performances.