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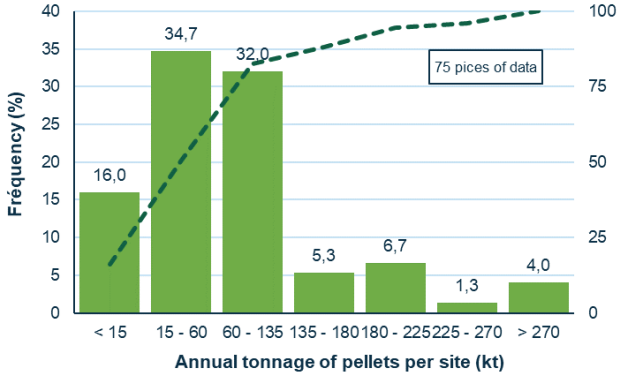
2017 survey of the installed pelleting press base in France

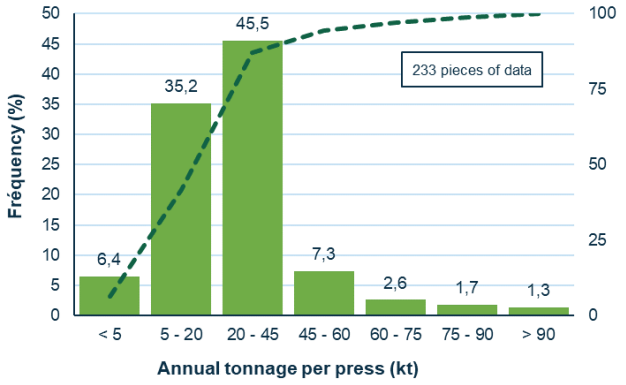
In 2017, the installed pelleting press base in France was surveyed as part of a study into the effect of variations in die speed (CINEP), co-funded by ADEME. Below is a report on the survey responses received from industry professionals.

1. Representative structure

Industry respondents had to complete one questionnaire for each press line. 245 lines were described for a total of 75 sites. Compared to the 311 sites identified in 2017, this represents 24% of the press base at French plants; based on the tonnage produced by these presses (6.4 million tonnes) this represents 31.4% of the tonnage produced in France in 2017.



The median pellet tonnage produced at the 75 sites is 58 kt, which is below the average tonnage produced by the French industry panel as a whole during the same year (68 kt). However, the only product dealt with here is the pellet tonnage.

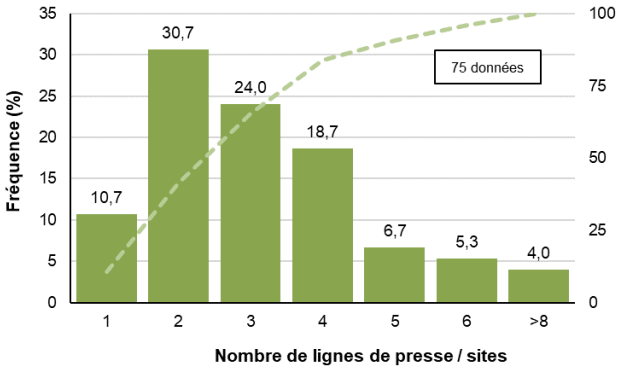


Median tonnage per press is 23.2 kt; most production levels lie between 20 and 45 kt. Significant variations have been recorded, however, as annual press production can vary from a few tonnes up to over 90 kt for the largest models.

2. Presses installed at sites

2.1. Number of presses

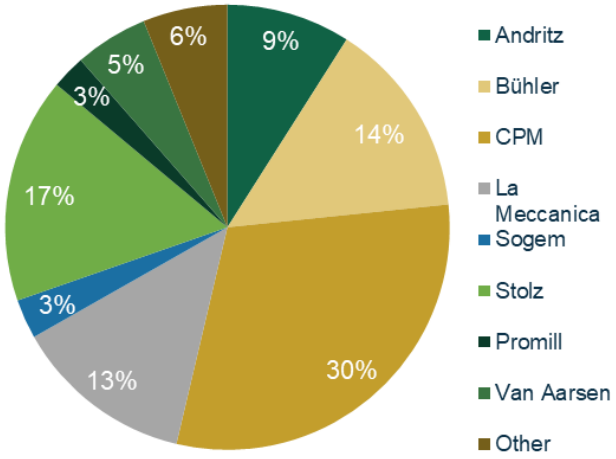
While the median value is 3 press lines per site, most plants (30.7%) only have two presses.



When extrapolated to the entire French industrial press base, this datum suggests a total press base of around 900 presses.

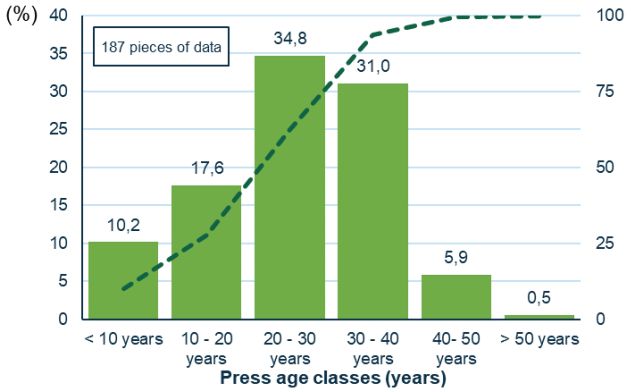
2.2. Press brand names

The most common brand is CPM, which accounts for about 1/3 of the installed base, followed by the Stolz+Promill grouping at 20%. Bulher and La Meccanica come next with similar percentage results.



2.3. Press ages

Nearly 24% of respondents do not know how old their presses are. Based on the 187 answers received, the median press age is about 25 years, with nearly 35% of the installed base being between 20 and 30 years. This indicates that presses tend to be renewed on a generational scale. Initiation of the installed base replacement process is observed when approx. 10% of presses are under 10 years old. The 37.4% of the installed base that is over 30 years old will probably be replaced in the coming years. This replacement could be speeded up by the need to change motor classes.



2.4. Press characterisation

While most presses are fitted with standard conditioners (82 %), 18% of them are fitted with long residence time conditioners.

The majority of these presses also have 2 rollers (88%), while the rest have 3.

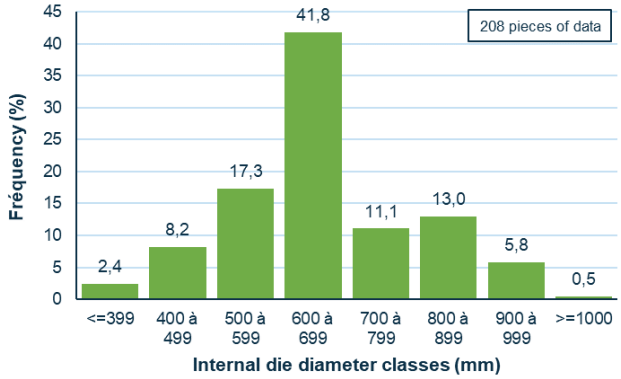
In 18% of cases, setting the gap between the rollers and the die is controlled automatically.

3. Size of the dies

3.1. Die diameters

This involves the internal diameter of the dies, and not the diameter of the channels, which will be discussed below. Surprising as it may seem, 15.1% of respondents do not know the diameter of their press dies.

Irrespective of the brand, the preferred die size is that with an external diameter of 600 to 699 mm.



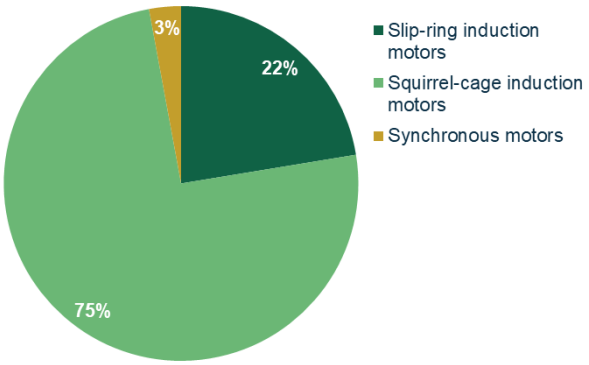
3.2. Channel diameters

Although there is no standard pellet diameter, it should be noted that the median channel diameter for the 7 types of feed surveyed, is between 3.5 and 4 mm, demonstrating minimal variation between species. These diameters can range from 2 to 10 mm.

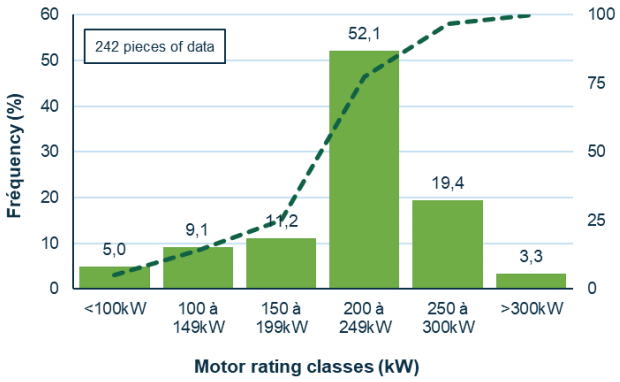
Feedstuffs	Channel diameters				
	Min.	25%	50%	75%	Max.
Pig	2.0	3.5	**3.8**	4.0	4.5
Broiler	2.2	3.5	**3.5**	4.0	4.5
Turkey	2.5	3.5	**3.5**	3.8	4.5
Duck	2.2	3.2	**3.6**	4.0	4.5
Bovine	2.5	4.0	**4.0**	4.0	10.0
Rabbit	2.5	3.8	**4.0**	4.0	9.0
Horse	3.5	4.0	**4.0**	4.25	10.0

4. Press motorisation

Most presses are fitted with squirrel-cage induction motors (75%) followed by slip-ring induction motors (22%). Only 3% of the installed base is fitted with synchronous motors.



Their median power rating is 200 kW with a mini-maxi deviation of 10 between 50 and 500 kW.

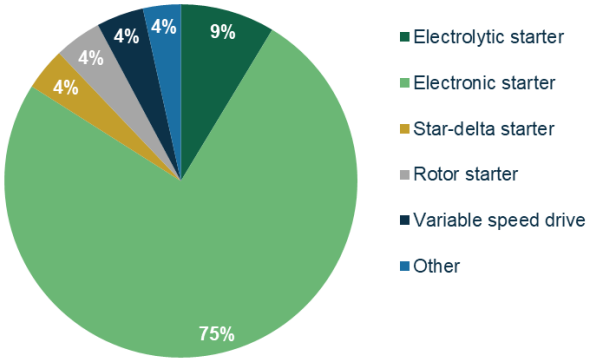


Lacking the actual consumption figures, the data on

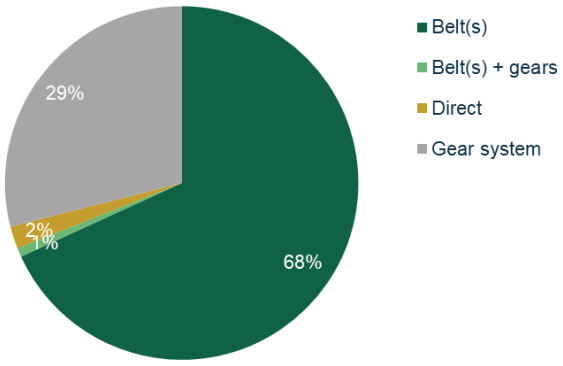
installed capacity and recorded flow rates was used to determine the specific installed consumption. This datum may be useful for future procurements. Logically, actual specific consumption (CSE) is greater for more fibrous feedstuffs (Bovine and Horse). The results for Duck and Rabbit are surprising as they would appear to contradict the expected results.

Feedstuffs	Median specific installed consumption (kWh/t)
Pig	27.2
Broiler	25.9
Turkey	25.4
Duck	28.6
Bovine	30.2
Rabbit	25.9
Horse	31.4

Presses are generally started up using an electronic starter (75%). The remaining 25% use other types of start-up, with electrolytic starters in first place.



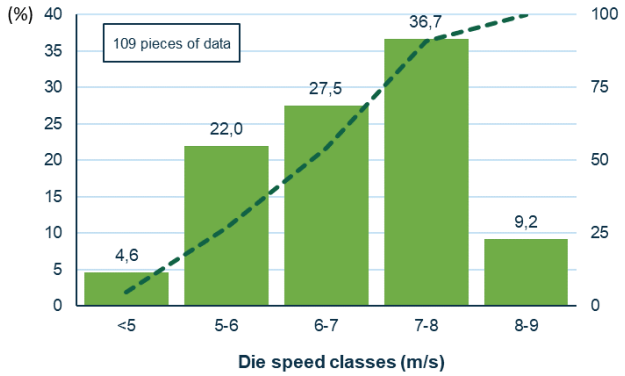
The drive is mainly effected through belts (68%). Gear systems represent the second option (29%).



5. Variation in die speed

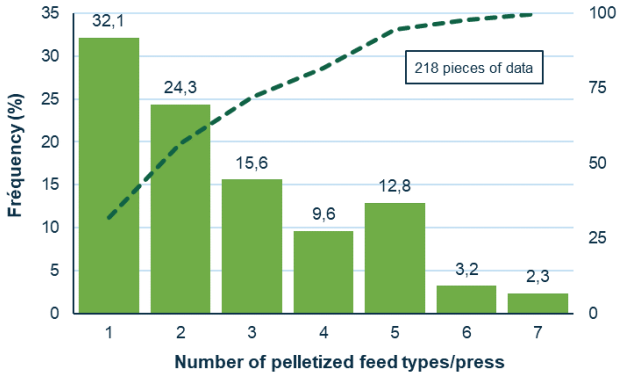
Given that this survey was conducted as part of the study on the use of variable speed drives with dies, one question obviously related to this type of system. Only 4.5% of presses are fitted with variable speed drives, which is close to the 4% of presses that use this type of system for starting up. However, when industry professionals were asked whether they had tested variable speed drives, the figure rises to 6.3%, which suggests that certain industrials have used variable speed drives on an ad hoc basis.

Knowledge of die speed is the first step in determining its suitability for the manufactured feeds. However, only 46.1% of respondents knew the speed of their die. Identification of this speed revealed a significant recorded deviation with a median speed of 6.6 m/s, a minimum of 4.5 m/s and a maximum of 9 m/s i.e. double the minimum speed. Given that this involves a component that partly accounts for electricity consumption, it is difficult to explain the reason for such a significant deviation.



6. Press usage

We studied press specialisation based on the data on the feedstuffs pelleted in the presses. Around a 1/3 of presses are fully specialised to process a single feedstuff, while over 50% of presses pelletize 2 feedstuffs at most. Conversely, 27.9% of the installed base is not specialised and can be used to pelletize 4 or more types of feed.



As regards the types of feed produced, it would appear that nearly half the presses can pelletize pork, poultry or bovine feeds (respectively 54%, 48% and 48% also). Other types of feed are produced in lesser quantities with, in decreasing order: Duck, Turkey, Rabbit and Horse. This distribution probably reflects

the distribution profile of the related markets.

Feedstuffs	% of presses pelletizing this type of feed
Pig	54
Broiler	48
Turkey	24
Duck	34
Cattle	48
Rabbit	17
Horse	11

Lastly, 50% of plants pelletize at least 70% of their poultry feed in the form of a coarse flour with grain size in excess of 800 µm, which represents the most notable change in feed formats in recent years.

7. Conclusion

This survey delivered an effective snapshot of the installed press base in 2017, along with their operating procedures and equipment, particularly in terms of motorisation. The panel represents 24% of the installed base at French plants; extrapolating to cover all plants suggests that the installed press base in France consists of around 900 units. When considered within the context of the programme that framed it (CINEP), this survey reveals that variable speed drives have been rarely used or tested on presses and that industry stakeholders paid little attention to this information, which nevertheless varies significantly according to the model, while die diameters remain fairly uniform. Pellets have a median diameter of between 3.5 and 4 mm, all species combined, and 1/3 of presses are fully specialised to process a single feedstuff.

It would be useful to repeat this type of survey, perhaps with fewer questions, in order to collect more data and build up a picture of how the installed base changes over time.