

# Batch management: the only option to produce today

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If we talk about group management, the first thing that comes to mind is that this is what small farms in Europe do, where they wean every three weeks. Nothing is so far from reality. Working with groups means organising our farm placing all sows in batches no matter if they wean once or twice per week, or every two, three, four or even five weeks. Size is not a limiting factor either when thinking about group management: we can group 100 sows as well as 100,000 sows.

Indeed, grouping is necessary. To be profitable in the swine production sector today we need to organise our farm in batches.

## What is a batch?

A batch is a group of animals, sows in our case, which are in a similar productive stage (they have been weaned, mated, and farrowed on the same day).

Having our farm organised in batches will help us be more effective and obtain better results.

However, this is not an easy task and sow biology will play against us, trying to mess up our organisation. But, as in all businesses, upfront organisation is the only way to prevent disorganisation and negative results at the end.

## Why do we need a batch?

There are several reasons why batch production is necessary in our farms:

- To avoid undesirable situations/fluctuation consequences of not grouping our sows. If we have our production flow and facilities designed to get 500 pigs a week, this is the number we need to achieve (production systems accepting limited variability). Despite a correct average, we can not work with 300 pigs one week and 700 the following week.

A situation like this would end up

Cell type/function	Neonatal	Development	Colostrum
Phagocytosis	Low	Development 12 weeks	
Neutrophils	High	Reduction until three weeks, then they grow	Yes
Macrophages	Low	Alveolar at two weeks, Intravascular 3-7 days	
Killer cells (NKC)	None	Shown at 2-3 weeks	
Lymphocytes B	Low (3-4%)	Mature at four weeks	Yes
Lymphocytes T (CD4/CD8)	Low (3-4%)	Mature at four weeks	Yes
Memory cells (CD4+CD8)	None	Grows fast until six months, then slow until mature age	
Intestinal lymphoid tissue	Poor	Development in four weeks	

Table 1. Development stages of immunity cells (Blecha et al., 2001).

provoking problems of over or understocking in our nurseries and/or finishers.

- To avoid weight dispersion that naturally happens with piglets of different ages. Piglets at the same age tend to have similar weights.

● To have same immunity ages. If we talk about development of immunity cells, we have to acknowledge that we have very specific and marked timings of development that dictate the different immunity stages. When mixing animals it is crucial to ensure that they are at the same immunity stage, otherwise we will have animals with different defence capabilities (Table 1).

- To have a more efficient work organisation. If a farm does not know its mating target, the sows are the ones managing the farm, not the farm manger. When running a farm it is basic to keep this clearly in mind: work is more efficient if we group tasks. If we plan one day focused on matings, another for farrowing and a different one to wean, all these will become more time effective.

- To achieve better production

results. All in-all out is not really a new technology as it comes from the 1960s, and isowean is not a new technology either (it dates from the 1990s).

Nonetheless, better production results come when we apply all in-all out combined with isowean.

It is easy to conclude that all in-all out is by far the best production scheme for a farm using isowean. There is no real way to produce (no matter the size) if we do not apply this to our production systems.

## Calculating batches

The number of batches in a farm will depend on two factors: the cycle length and the interval between batches.

- Sow cycle length. The duration of the reproductive cycle is the sum of the interval from weaning to oestrus + gestation length + lactation length, for example 114 days + 5 days + (21-28) days. Therefore, the cycle time ranges between 20 weeks (if weaning at 21 days) and 21 weeks (if weaning at 28 days).

- Interval between batches. The time interval between groups is the number of days that separate two repetitions of the same productive event (interval between two groups of farrowing, weaning or matings).

The number of batches is obtained by dividing the cycle time by the interval between groups, both expressed in weeks:

Number of batches = cycle time / interval between batches (in weeks).

The batch number must be an integer number (without decimals). Therefore, the cycle length, and consequently the duration of lactation, must be 'stretched out' in order to achieve this exact number.

Table 2 shows how the number of batches is calculated under different management systems.

To correctly distribute the total sow population within the batches we need to divide the sow census by the number of batches. For example, if we have 2000 sows and we apply option 1, we need to place 100 sows per batch.

Batch production is not one option among many, it is the only option to produce today. ■

Table 2. Calculating number of batches under different management systems.

	1 (3 week wean)	2 (4 week wean)	3	4	5	6
Cycle length (weeks)	20	21	20	21	20	20
Interval between groups (weeks)	1	1	2	3	4	5
Batch number	20	21	10	7	5	4