Batch Farrowing Conversion: What to expect ?

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Banff Pork Seminar
January, 2019

Subjects of the presentation

- Introduction
- Advantages and disadvantages of batch farrowing (BF)? Why we should choose BF?
- Differents options of BF
- Producing robusts piglets
- Employees specialization and dedication
- Implementing BF
- Maintaining batch size/ gilts introduction
- What do we do with returners?
- The bottleneck concept in BF
- Other points that we have to take into consideration
- BF effects on group housing layout
- Economic
- Conclusion

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Introduction

- This presentation is based on my personnal experience as supervisor within an integrated system in the province of Quebec (+/-20000 sows, from 200 to 2600 sows) and comments from colleagues of other companies. I'm not working with this company anymore (April 2018) and I did'nt have access to the newest stats.
- Description of batch farrowing (BF):
  ¨A group of sows due to farrow at about the same time are moved into the farrowing facility at the same time and kept there until all are farrowed; they are then moved out (weaned); the facility is then thoroughly sanitized ready for the next batch¨ (The free dictionary).

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Advantages and disadvantages of Batch Farrowing: What we were looking for…

Pros…

- Improved health (virus control) and post-weaning performances (ADG, FC, mortality)
- Better usage of employees (specialisation…)
- Large group of weaners of the same age and size, single source in post-weaning, easier for climate control, phase feeding, transport logistic
- Lower stillbirth and pre-weaning mortality percentages as high concentration of tasks in a short period and possibility to have a ¨special team¨ to cover this
- Possibility to move personnal from one farm to an other which can facilitate the work when you don’t have a lot of employees.
- Improved biosecurity in transport of animals and semen deliveries

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Advantages and disadvantages of Batch Farrowing: Our concerns…

Cons…

- Many of our farms were weaning 2 times/week. Moving to BF reduced the total sow inventory (or add farrowing crates). Weekly cycle demands 2-3% open spaces for animal movements. 4 weeks cycle: 5%+
- Reduction of productivity (p/s/y) as in many options of BF, returns in heat fail to cycle within the request period of breeding (more NPDs)
- Employees were receiving bonification based on p/s/y. They were not thrilled by this change
- Introduction of gilts
- Hormone costs
- Due to transport considerations, some barns have to wean on Monday/Tuesday leading to a lot of breeding and farrowing on week-end(employees concerns)

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Why should we choose BF?

This is the first question you have to ask yourself. Answers will determined if you really need BF and the best version of BF for your farm.

1. Health problems, control of disease: Need all-in all-out in farrowing rooms
2. Improve post-weaning performances: Need all-in all-out in post-weaning facilities and single source. The amount of piglets weaned has to fit the size of the barn to respect single source.
3. Wean to finish systems: need heavier and older piglets, 5 weeks cycle?
4. Higher number of piglets weaned from a small farm to keep or open a market
5. Labor utilization: specialised workers could be move from barn to barn. Breeding team, piglets caretakers at farrowing, cleaning team… Part time staff

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Different options of BF

Once you have decided that BF is a good option for your system (corporative barns and independant suppliers if presents), you have to choose the best options for each barn upon targets you are looking for. Those are decisions we made for our farm network 20+ years ago

- For some barns where location was not optimal (PRRS break, Myco…): all-in all-out in the farrowing section was non-negociable
- For smaller barns, to have single source in nursery, 4-5 weeks cycle or close the facility
- Multiplication unit in Ontario (2600 sows) selling F1 gilts to Quebec and USA (barrows stay in Ontario), 2 weeks cycle. 2600-2800 weaners per batch, femelles in a full trailer load (1300-1400)
- Bigger barn (2500 sows) with a good location, weekly farrowing
- 3000 sows system (Ferme Saniben, contract), same owner, 3 sites 2 kms apart. Unit 1 (600 gilts unit) is 2 weeks cycle BF and the 1150 and 1250 are 4 weeks cycle, 2 weeks apart. So they weaned +/- 3000 every 2 weeks

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Differences between BF options

2 weeks cycle (10/2)

- 2 groups in farrowing, 10 groups total.
- No respect of strict all-in all-out in farrowing rooms. Always piglets in this section of the barn. Must respect rules between the groups in lactation if disease problems (scours…)
- +/- 5.2 sows/farrowing crate
- In case of PRRS, harder to eradicate
- No time out between batchs. 1 week for weaning and the other for breeding and farrowing
- Weaning at +/- 21 days

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Differences between BF options

3 weeks cycle (7/3)

- 2 groups in farrowing, 10 groups total.
- No respect of strict all-in all-out in farrowing rooms. Always piglets in this section of the barn. Must respect rules between the groups in lactation if disease problems (scours…)
- +/- 3,5 sows/farrowing crate ($$$)
- In case of PRRS, harder to eradicate
- Some time out between batchs
- Weaning at +/- 28 days (21 also possible)
- Fits with the normal heat cycle of the sow

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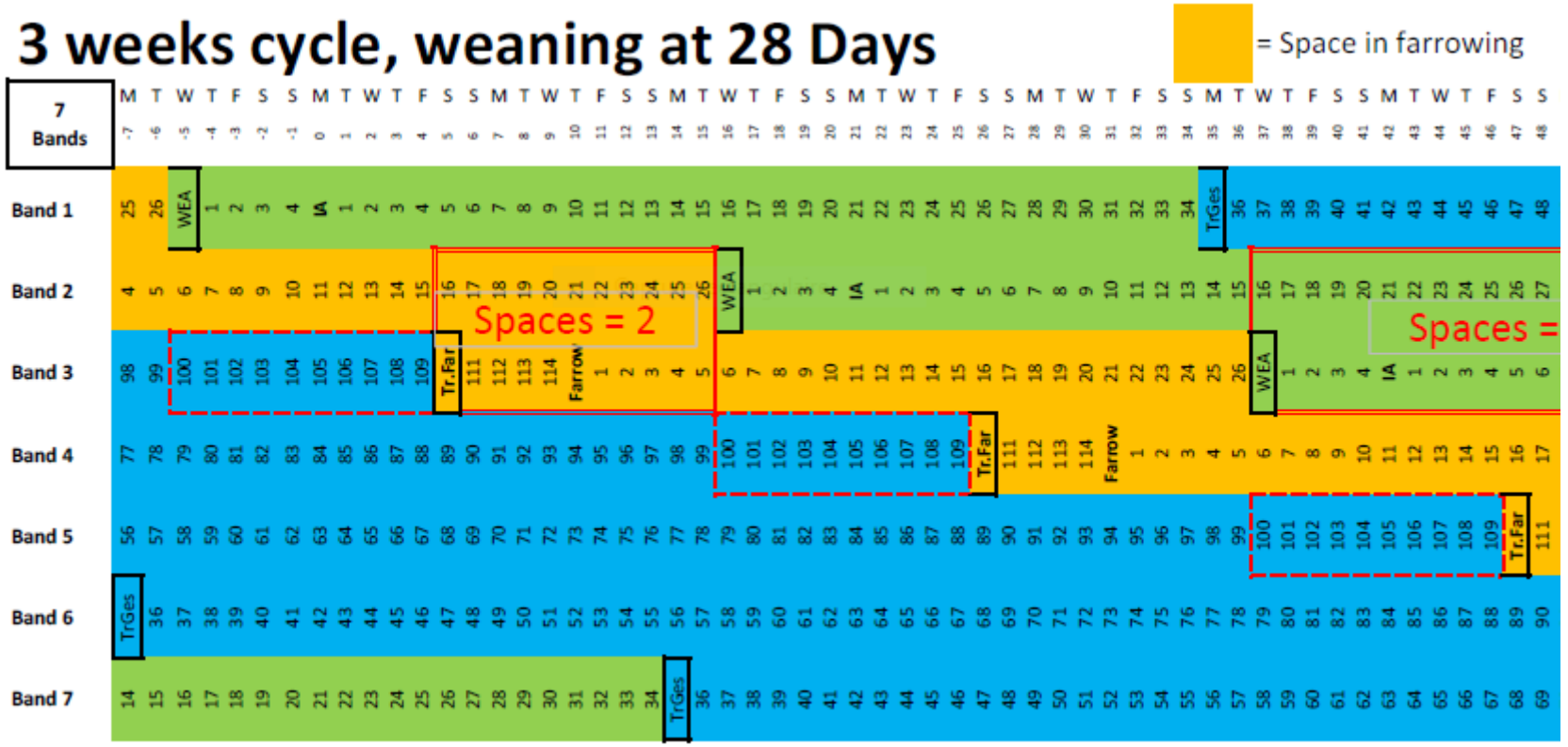
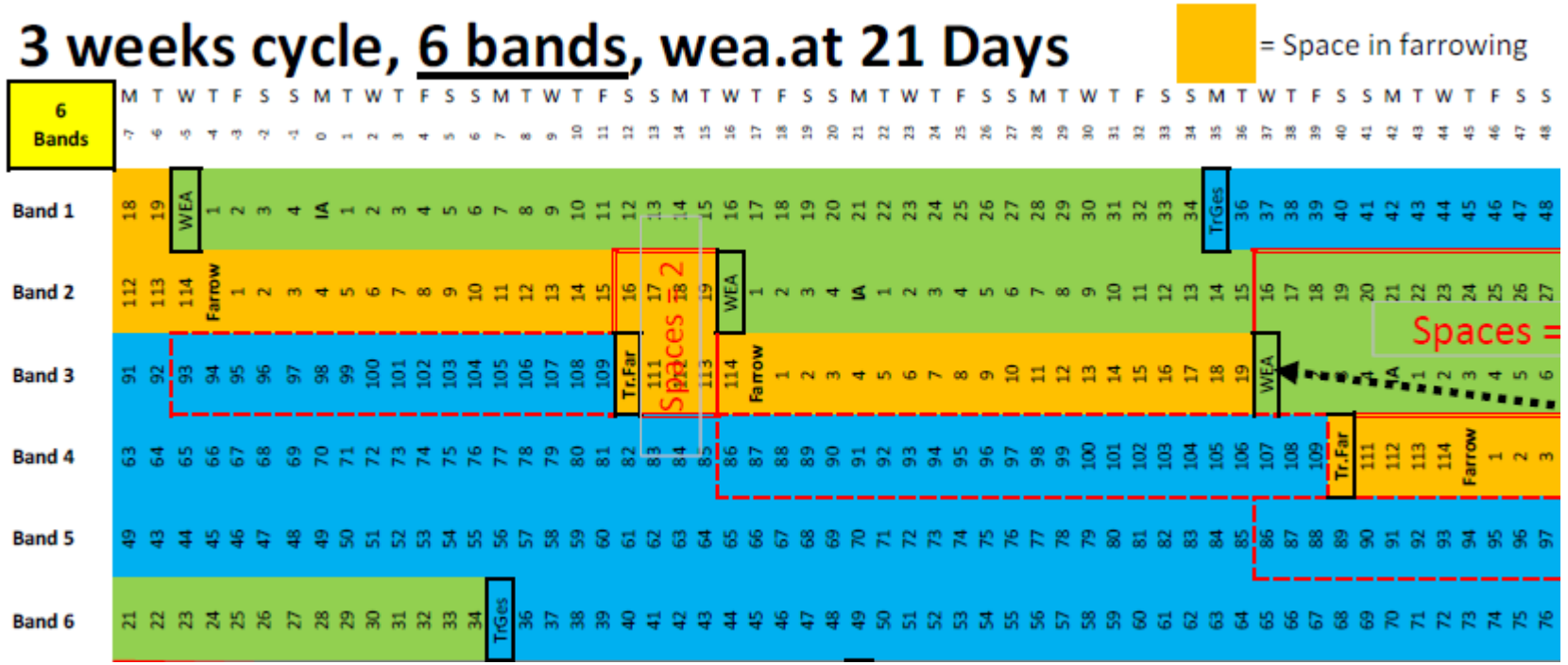
Differences between BF options



Differences between BF options



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Differences between BF options

4 weeks cycle (5/4)

- 1 group in farrowing, 5 groups total.
- Respect of strict all-in all-out in farrowing section. After weaning of ALL piglets, cleaning and desinfection of the section
- +/- 5,2 sows/farrowing crate
- In case of PRRS, easier to eradicate
- Time out between batchs. 1 week for weaning, 1 week for breeding and farrowing. Next one for the rest of castration and week # 3 for vacation, maintenance…
- Weaning at +/- 21 days
- Doesn’t fit with normal heat cycle of the sow

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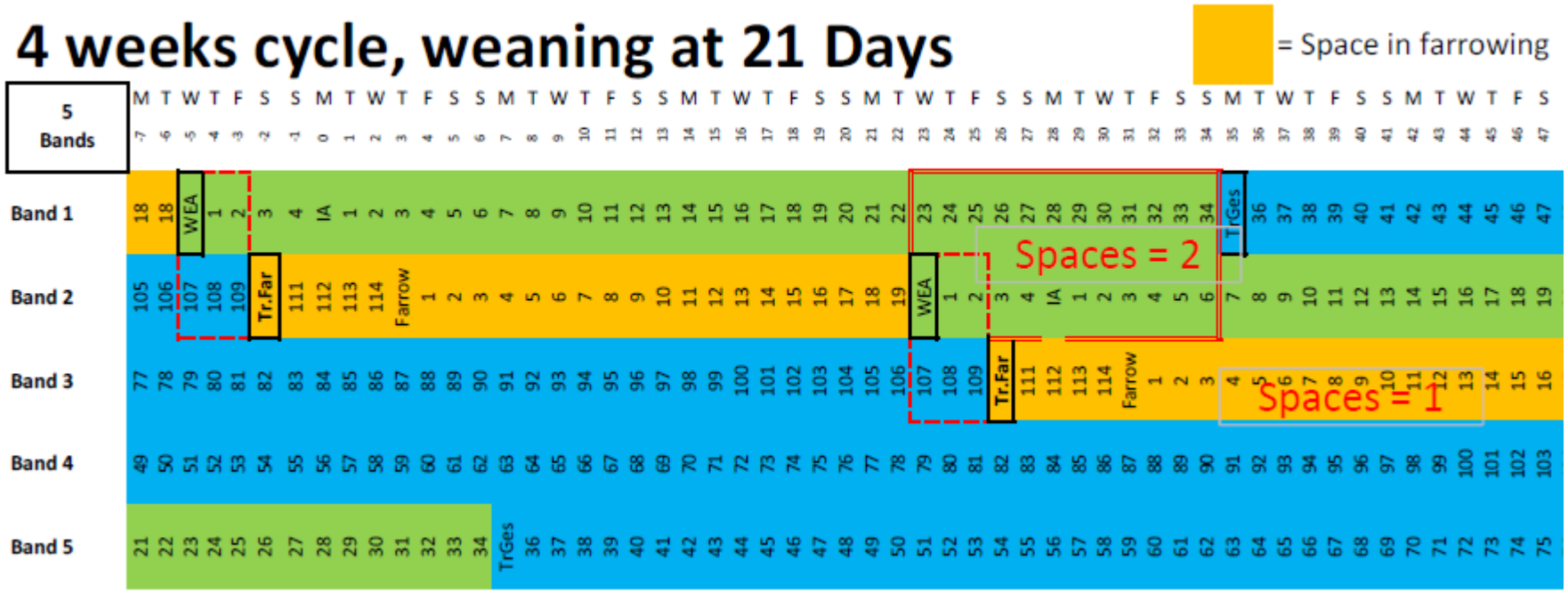
Differences between BF options



Differences between BF options

5 weeks cycle (4/5)

- 1 group in farrowing, 4 groups total.
- Respect of strict all-in all-out in farrowing section. After weaning of ALL piglets, cleaning and desinfection of the section.
- +/- 5,2 sows/farrowing crate .
- In case of PRRS, easier to eradicate.
- Time out between batchs. 1 week for weaning, 1 week for breeding and farrowing. Next one for the rest of castration and week # 3-4 for vacation, maintenance…
- Weaning at +/- 28 days.
- Doesn’t fit with the normal heat cycle of the sow

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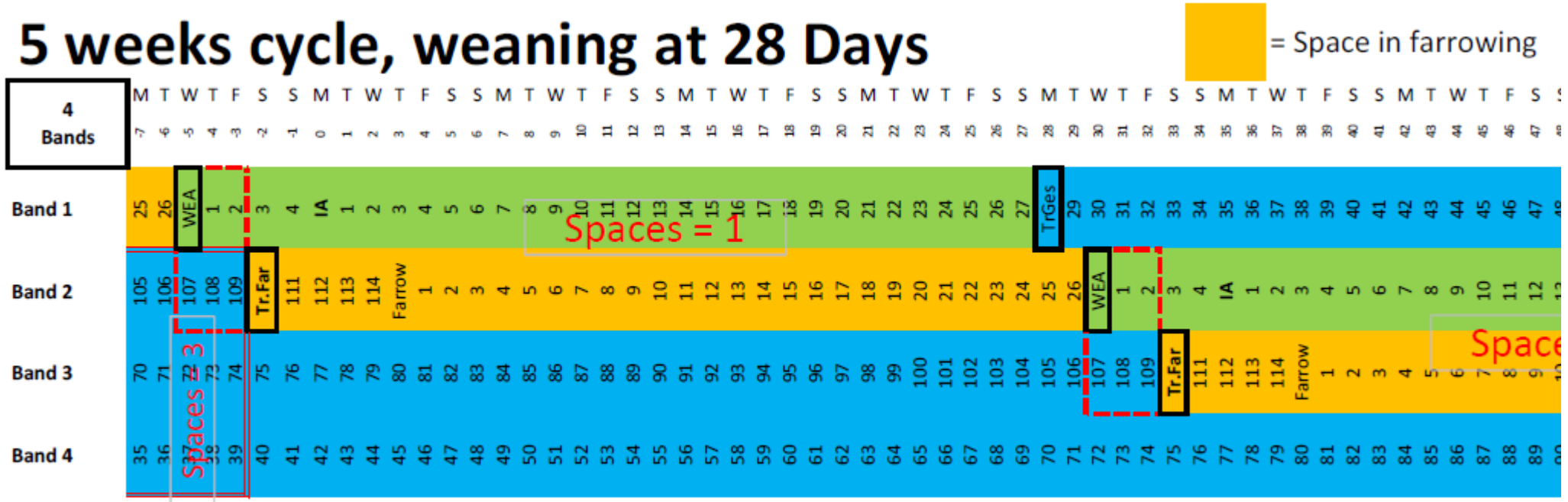
Differences between BF options



Producing robusts piglets

Batch farrowing will allow to produce robusts and healthy piglets if:

1. Respect of strict all-in all-out in farrowing rooms (4-5 weeks cycle) where disease is present (virus) or a great potential of been present sooner ot later. Where no disease challenge, 2-3 weeks cycle still have to respect the all in –all out in rooms between batchs.
2. Respect of non-negotiable rules.
3. Employees dedication and specialisation. Best employee for the job.

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Producing robusts piglets

Rules

1. Respect 3- 4 days of breeding (bonification!), risk of  NPDs. Regroup farrowings as much as you can.
2. Strict all-in all-out. No piglets can stay in the barn after weaning (i.e. moving to the next batch).
3. No new farrowing until weaning of the previous batch is done (Hormones to delay farrowing by 2 days maximum).
4. Minimum weight at weaning upon age (21 days and 4 kilos).
5. Ruptures, hernias (none or maximum size), feet and legs, skin problems…
6. Inspection and credits before weaning.
7. Blood sampling for PRRS etc.
8. Employees are present at crucial times (farrowing and first days).
9. Cleaning and desinfection must be perfect.

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Breeding date limits

Weaning on Thursday					
	2019-01-10				
Breeding date					
	Sunday	Monday	Tuesday	Wednesday	Thursday
	2019-01-13	2019-01-14	2019-01-15	2019-01-16	2019-01-17
Farrowing date					
	2019-05-08	2019-05-09	2019-05-10	2019-05-11	2019-05-12
Next weaning date					
	2019-05-30				
Weaning age	22	21	20	19	18

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Employees utilization and dedication

Employees are paid per week and also received bonification sometimes. Moving from weekly to BF has an impact on them (lower productivity, uneven charge of work on different weeks…). They have to understand why a move like this is made, respect established rules and be dedicated to the success of the new system.

1. If you have many farms and employees, specialized some of them. A good breeder in BF worth a lot of $ (and a good supervisor in farrowing rooms too)… Move those people from barn to barn, give them week-ends off if necessary (biosecurity).
2. Adjust your bonification tables.

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Employees utilization and dedication

3. Bad part: don’t allow possibility for vacation at crucial time of the cycle (4 weeks BF: 2 weeks out of 4).
4. 24 hours monitoring at farrowing days? (4 weeks BF mean 3 days with induction).
5. Overstaffed for crucial period.
6. We need to overcome the NPDs problem in 4 weeks BF with lower stillbirth/pre-weaning percentage and better farrowing rate.

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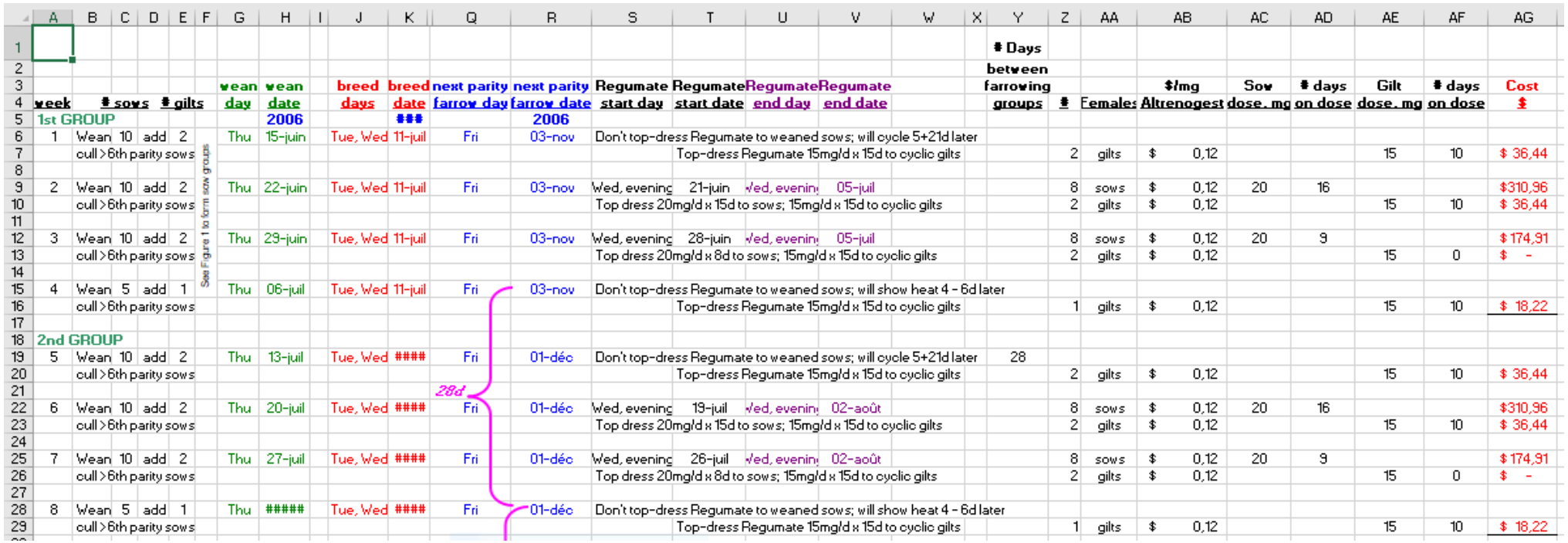
Implementing batch farrowing

Starting from weekly farrowing to BF: Help from Dr. Eduardo Beltranena of University of Alberta in….



week	# sows	# gilts	wean day	wean date	breed days	breed date	next parity farrow day	next parity farrow date	Regumate start day	Regumate start date	Regumate end day	Regumate end date	# Days between farrowing groups	# Females	$/mg Altrenogest	Sow dose, mg	# days on dose	Gilt dose, mg	# days on dose	Cost $
1st GROUP				2006		###		2006												
1	Wean 10	add 2	Thu	15-juin	Tue, Wed	11-juil	Fri	03-nov	Don't top-dress Regumate to weaned sows; will cycle 5+21d later											
	cull >6th parity sows									Top-dress Regumate 15mg/d x 15d to cyclic gilts				2	gilts	$ 0,12			15	10	$ 36,44
2	Wean 10	add 2	Thu	22-juin	Tue, Wed	11-juil	Fri	03-nov	Wed, evening	21-juin	Wed, evening	05-juil		8	sows	$ 0,12	20	16			$310,96
	cull >6th parity sows								Top dress 20mg/d x 15d to sows; 15mg/d x 15d to cyclic gilts					2	gilts	$ 0,12			15	10	$ 36,44
3	Wean 10	add 2	Thu	29-juin	Tue, Wed	11-juil	Fri	03-nov	Wed, evening	28-juin	Wed, evening	05-juil		8	sows	$ 0,12	20	9			$ 174,91
	cull >6th parity sows								Top dress 20mg/d x 8d to sows; 15mg/d x 15d to cyclic gilts					2	gilts	$ 0,12			15	0	$ -
4	Wean 5	add 1	Thu	06-juil	Tue, Wed	11-juil	Fri	03-nov	Don't top-dress Regumate to weaned sows; will show heat 4 - 6d later											
	cull >6th parity sows									Top-dress Regumate 15mg/d x 15d to cyclic gilts				1	gilts	$ 0,12			15	10	$ 18,22
2nd GROUP																				
5	Wean 10	add 2	Thu	13-juil	Tue, Wed	####	Fri	01-déc	Don't top-dress Regumate to weaned sows; will cycle 5+21d later				28							
	cull >6th parity sows									Top-dress Regumate 15mg/d x 15d to cyclic gilts				2	gilts	$ 0,12			15	10	$ 36,44
							28d													
6	Wean 10	add 2	Thu	20-juil	Tue, Wed	####	Fri	01-déc	Wed, evening	19-juil	Wed, evening	02-août		8	sows	$ 0,12	20	16			$310,96
	cull >6th parity sows								Top dress 20mg/d x 15d to sows; 15mg/d x 15d to cyclic gilts					2	gilts	$ 0,12			15	10	$ 36,44
7	Wean 10	add 2	Thu	27-juil	Tue, Wed	####	Fri	01-déc	Wed, evening	26-juil	Wed, evening	02-août		8	sows	$ 0,12	20	9			$ 174,91
	cull >6th parity sows								Top dress 20mg/d x 8d to sows; 15mg/d x 15d to cyclic gilts					2	gilts	$ 0,12			15	0	$ -
8	Wean 5	add 1	Thu	#####	Tue, Wed	####	Fri	01-déc	Don't top-dress Regumate to weaned sows; will show heat 4 - 6d later											
	cull >6th parity sows									Top-dress Regumate 15mg/d x 15d to cyclic gilts				1	gilts	$ 0,12			15	10	$ 18,22

See Figure 1 to form sow groups

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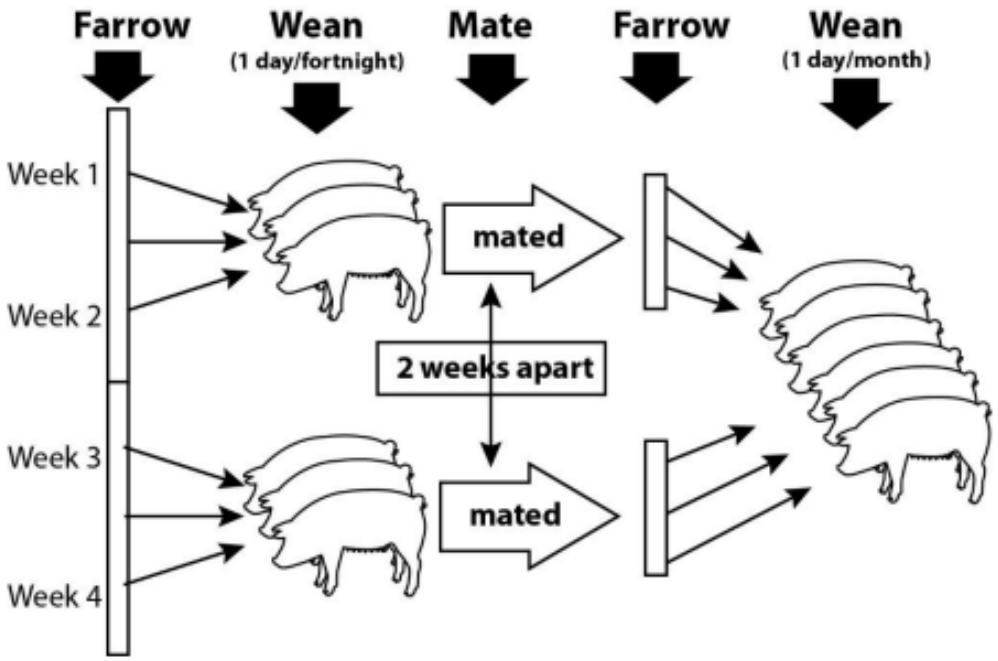
Implementing batch farrowing

Another way if you are in no hurry…



1 BATCHING SOWS – DEPT. OF AG & FISHERIES, AUSTRALIA.

Implementing batch farrowing: from weekly to 4 week batchs (E. Beltranena: Switching from weekly to BF sows)

Figure 1. Switching an established herd from weekly (top) to 28d batch farrowing and weaning (bottom). The procedure is repeated four more times to form the five sow breeding groups for the barn

Implementing batch farrowing: from weekly to 4 week batchs (E. Beltranena: Switching from weekly to BF sows)

1. The sows from the Week 1 Group are allowed to skip the post-weaning heat and repeat ~21d later. NO Altrenogest is top-dressed to this group of sows.
2. The sows from the Week 2 Group are individually top-dressed Altrenogest (20mg/d) starting the evening prior to weaning their litter and continuing for 15d. The last day of Altrenogest administration is the evening prior to weaning the litters of sows in Group 4.
3. The sows from the Week 3 Group are individually top-dressed Altrenogest (20mg/d) starting the evening prior to weaning their litter and continuing for 8d. The last day of Altrenogest administration is the evening prior to weaning the litters of sows in Group 4.
4. The sows from the Week 4 Group should show post-weaning heat 4 – 6d later. NO Altrenogest is top-dressed to this group of sows. Sows from Week 1, 2 and 3 Groups are AI serviced with the sows from the Week 4 Group. Sows from all four groups should farrow in synchrony ~115d later.

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Maintaining batch size

4 weeks cycle means 13 batchs per year. You don't want empty farrowing crates because you won't be able to recover.

Key points:

- Gilts pool size and empty sows available (3 X what is necessary as replacement per batch).
- # of mating per batch to fill farrowing crates (seasonnal variations).
- At weaning, keep old sows (the best one) that would normaly go to slaughter. Breed them once and wait till preg test is done. Remove the one that you don't need only at that point.

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Gilts introduction in batchs

1. In our system, few barns have the capacity to keep a good inventory of gilts.
2. For most of them, we introduced gilts the week of weaning (40-50% to show heat within 1st week).
3. Regumate/Matrix only for those who have shown standing heat (push them in the breeding week).
4. Gilt breeding unit:
   - 500-600 capacity
   - Empty gilts received and pregnant gilts delivered once per month after negative PRRS/Myco results (blood samples)
   - No need for Regumate/Matrix ($$$)
   - Delivery at 70 days of gestation
   - Served at second heat

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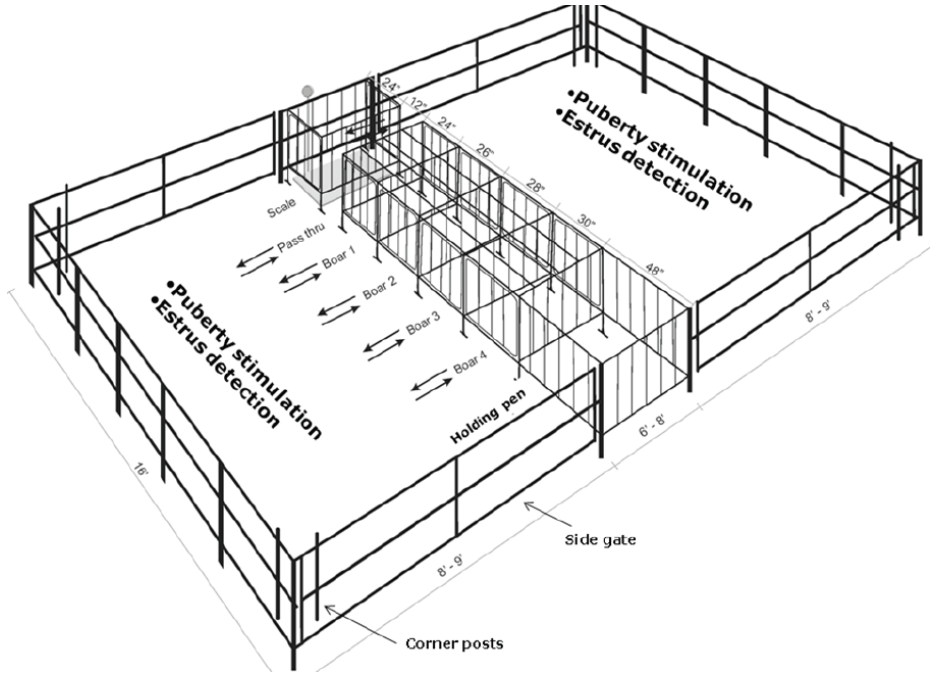
Gilts introduction in batchs: where you have the facilities (E. Beltranena: Getting started BF Gilts)

In quarantine/GDU…

- Fenceline + direct physical boar contact for ~30d in **BEAR**
  - *Expect 40 - 50% of gilts to show heat within 1st week*
- Re-group & mix gilts that haven't cycled after 14d
  - *Expect ~ 60 - 70% of gilts to show heat within 3 weeks*
- **Record heat-no-serve**
- Inject PG600 to non-responders @ 23d
  - *Expect ~90% in heat within 4 weeks*
- Responders to be synchronized
- Non-responders go to slaughter



Gilts introduction in batchs: Saniben gilt unit

600 sows barn, 2 weeks cycle

- Weaning every 2 weeks (+/- 40 gilts, 425 sows herd).
- Breed around 60 gilts per batch, keep 40 of them for farrowing and send the rest as replacement (with P2 at weaning) for the 2 other barns (1150-1250 sows).
- At weaning, weaners of the gilt unit plus the 1150 unit are sold together, 2 weeks later they repeat but with the 1250 sows unit.
- Almost no need for Regumate/Matrix.
- Drive like a multiplication unit (shower in, blood samples…).

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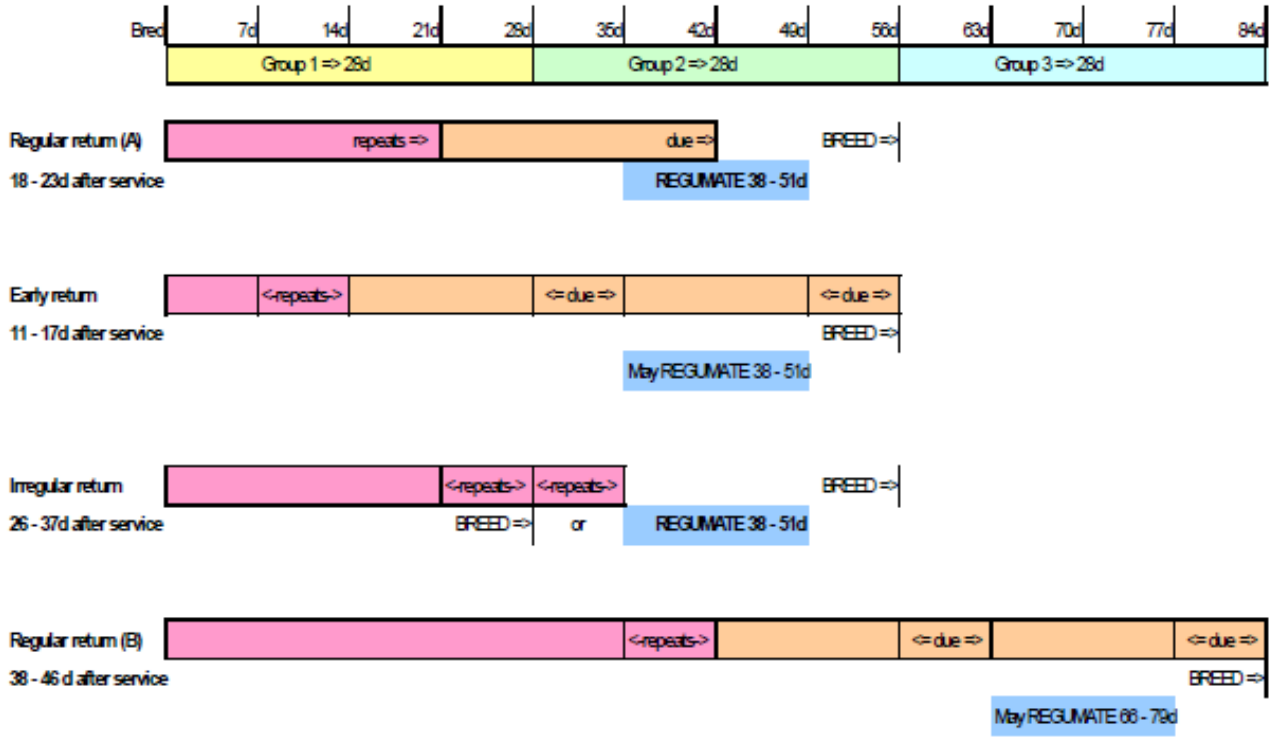
What to do with returners?

(Switching from weekly to BF sows E. Beltranena)

- Returners accumulate more NPDs.
- The risks and costs will be greater than conventional weekly farrowing and weaning for barns where production management is currently limiting.



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To reduce NPDs

- Delayed return to oestrus after weaning can disrupt BF programms. It is more common in gilts (1st weaning), sows with poor body condition and hot summer's months. It may be useful to wean these sows slightly earlier than the main batch and expect they will be in good heat exactly with the main group otherwise they will be delay to an other batch.
- Preg test sows as early as possible to reduce NPDs, if possible 18-20 days with modern ultrasound equipment if you can.
- Culled returners? (Culling policy).

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The bottleneck concept in BF

We would like that our sow barns produce the same number of weaners every batch but it's not the case. You have to be imaginative sometime

- You've planned a 2000 places nursery for your next weaning but you only have 172 farrowing and 1825 weaners: Lost for the nursery.
- You have 16 TB and low mortality, too many weaners, what do you do?
- You breed 200 sows and your farrowing rate for this batch is 98%, you have an extra 15 sows and no farrowing crate available.
- Etc.

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Other points we have to take in consideration…

- BF affects layout for Sow Group Housing.
- Electrical demand at farrowing days. 2 lamps/crate, that's a lot of energy, be sure your electrical panel can handle this.
- Water availability. Washing 200 crates the same week is different than only 50.
- Larger shipping room and quarantine.
- Alarm system on your semen conservation unit (4 times more doses $$$) and a bigger unit.
- Use post-cervical AI or Gedis (+/- 125 sows per hour, 2 empl.).
- Ovugel™? (80% farrowed the same day if induced at the same time).
- In case of PRRS break: need place to introduce +/-6 months of replacement gilts.
- Christmas and New Year weeks! Always the same year after year…
- Effect on boar stud operation.

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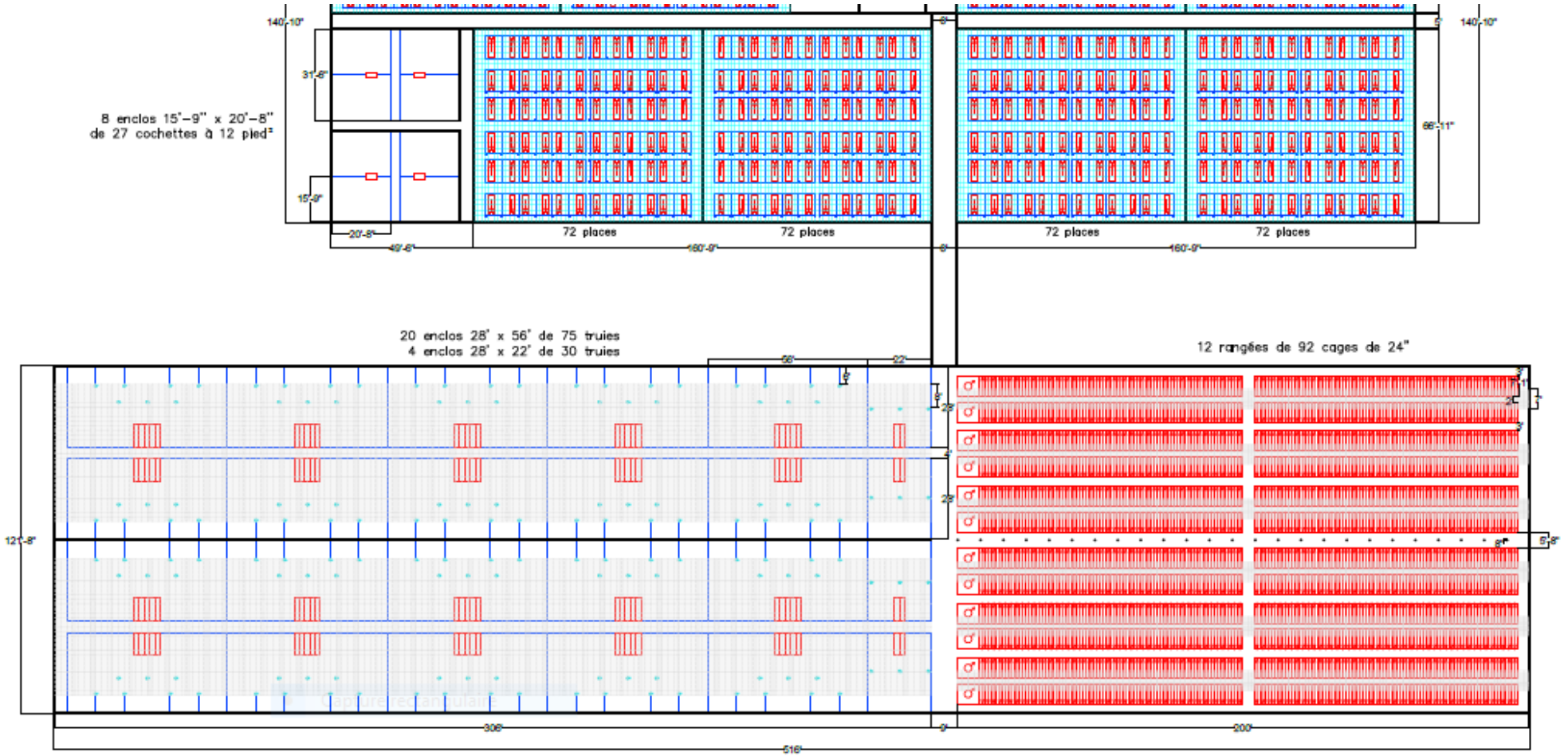
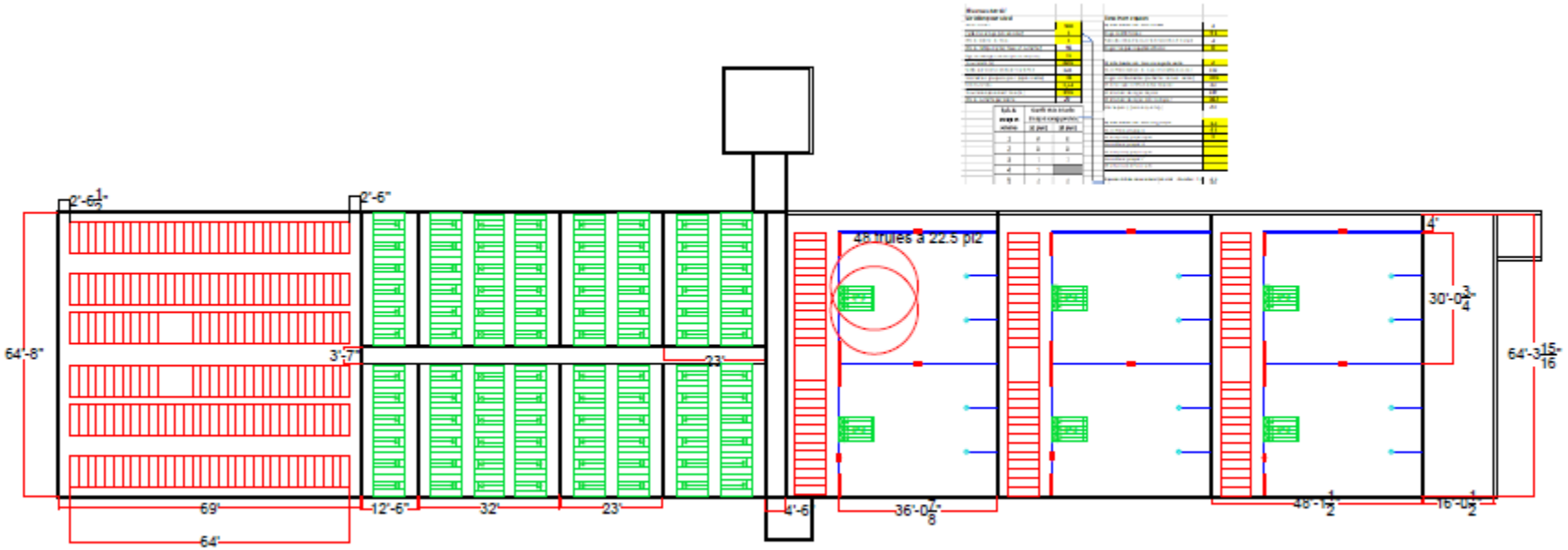
Sow group housing: weekly batchs



Sow group housing: 4 weeks cycle



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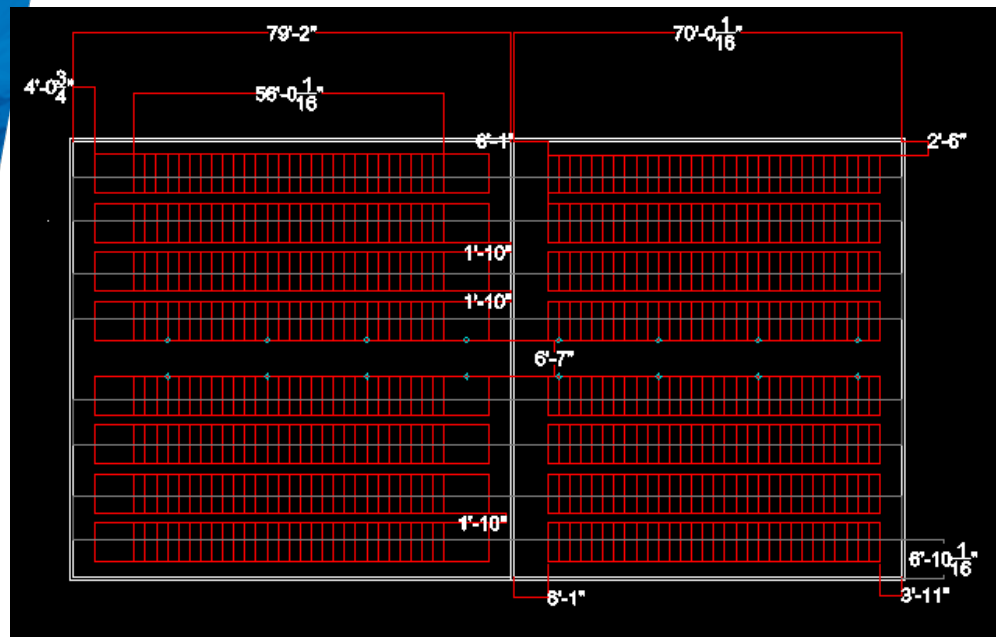
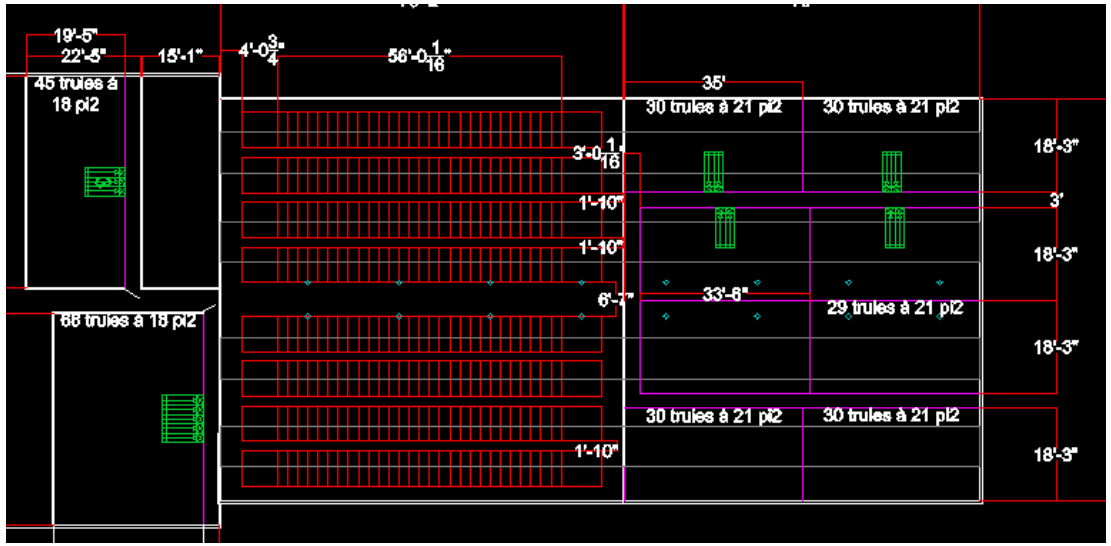
Sow group housing: 4 weeks cycle





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Sow group housing: Groups distribution

Calculation Variables			Needs in spaces	
Total Sows	350		Qty of sow band(s) in farrowing	4
Weaning cycle in week(s)	1		Total Farrowing crates	58
Total quantity of sow Bands	21		Weeks per band in farrowing including washing	4
Farrowing sows/gilts per cycle	14,5		Additional Temporary crates	
Weaning age of piglets (21 or 28 days)	21			
Farowing rate (%)	86%		Qty of sow band(s) in breeding stalls	6
Breeding per cycle (including gilts and returns)	16		Minimum Qty of stalls in breeding section	96
Transfer in group at day (after breeding)	35		Additionnal stalls for gilts, empties, lames (%)	15%
Turnover (F/S/Y)	2,36		Qty of additionnal stalls	14
Gilt replacemnt rate (%)	42%		Qty Total of stalls required	110
Gilt entry per cycle	3		Qty total of stalls in this layout	120
			Qty of stalls Extra (+) or missing (-)	10
			Qty of sow band(s) in groups	11
			Grouping quantity A	15
			Qty of pen(s) A per cycle	1
			Grouping quantity B	
			Qty of pen(s) B per cycle	
			Grouping quantity C	
			Qty of pen(s) C per cycle	
			Total spaces (should be Qty of sow bands + 1)	21,0

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Sow group housing: Groups distribution

Calculation Variables			Needs in spaces	
Total Sows	750		Qty of sow band(s) in farrowing	2
Weaning cycle in week(s)	2		Total Farrowing crates	141
Total quantity of sow Bands	11		Weeks per band in farrowing including washing	4
Farrowing sows/gilts per cycle	70,4		Additional Temporary crates	
Weaning age of piglets (21 or 28 days)	21			
Farowing rate (%)	86%		Qty of sow band(s) in breeding stalls	3
Breeding per cycle (including gilts and returns)	81		Minimum Qty of stalls in breeding section	243
Transfer in group at day (after breeding)	35		Additionnal stalls for gilts, empties, lames (%)	10%
Turnover (F/S/Y)	2,44		Qty of additionnal stalls	24
Gilt replacemnt rate (%)	42%		Qty Total of stalls required	267
Gilt entry per cycle	12		Qty total of stalls in this layout	275
			Qty of stalls Extra (+) or missing (-)	+5
			Qty of sow band(s) in groups	6
			Grouping quantity A	35
			Qty of pen(s) A per cycle	2
			Total spaces (should be Qty of sow bands + 1)	11,0

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Sow group housing: Groups distribution

Calculation Variables			Needs in spaces	
Total Sows	750		Qty of sow band(s) in farrowing	1
Weaning cycle in week(s)	4		Total Farrowing crates	142
Total quantity of sow Bands	5		Weeks per band in farrowing including washing	4
Farrowing sows/gilts per cycle	142		Additional Temporary crates	
Weaning age of piglets (21 or 28 days)	21			
Farowing rate (%)	87%		Qty of sow band(s) in breeding stalls	2
Breeding per cycle (including gilts and returns)	163		Minimum Qty of stalls in breeding section	326
Transfer in group at day (after breeding)	35		Additionnal stalls for gilts, empties, lames (%)	10%
Turnover (F/S/Y)	2,46		Qty of additionnal stalls	33
Gilt replacemnt rate (%)	42%		Qty Total of stalls required	358
Gilt entry per cycle	24		Qty total of stalls in this layout	370
			Qty of stalls Extra (+) or missing (-)	12
			Qty of sow band(s) in groups	3
			Grouping quantity A	47
			Qty of pen(s) A per cycle	3
			Total spaces (should be Qty of sow bands + 1)	6,0

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Effect on boar stud operation

Boar stud operation												
Doses produce per week for batch farrowing customers												
	Customer	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Week	# of sows	600	850	1000	600	750	2500	900	1200	600	500	
2019-01-13		267				333	556					1156
2019-01-20			378						533			911
2019-01-27				444			556					1000
2019-02-03					267			400		267	222	1156
2019-02-10		267				333	556					1156
2019-02-17			378						533			911
2019-02-24				444			556					1000
2019-03-03					267			400		267	222	1156

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Economics

- Hard to estimate (many different types of gilts introduction, where do you start from…).
- Reduction of 1 p/s/y.
- Reduction of sow inventory ? (2 weanings/week).
- More NPDs.
- Cost of Regumate/Matrix (+/- $7,00/s/y).
- Increase in post-weaning performances (nursery).
- Reduction in transport costs (variable).

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Economics

NPDs	25	30	35	40
Litter/sow/year	2,5	2,46	2,43	2,39
Weaned/litter	11,5	11,5	11,5	11,5
W/S/Y	28,75	28,29	27,95	27,49
Difference	_	-0,46	-0,81	-1,27

12.5 NPDs at $3,25/d: $40,60/S/Y

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Economics

- Nursery
  - ADG: Increase of +/- 8%
  - Mortality: Reduction from 0,5 to 6,5%+
  - Drugs: Reduction of 15-40%

- Finishing
  - ¨Passing from weekly farrowing to 4 weeks BF gave me piglets like when I’ve started with my high health herd several years ago¨ A.Lefebvre, Ferme Aldo

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Conclusion

BF have been and is still a powerful tools for sow farms as it solves or reduces many problems producer may face.

Weaning 1000+ piglets of good quality with a 500 sows unit represents a kind of security for the futur of a small farm.

Single source of good piglets means better results.

PRRS (virus) contamination will be easier to eradicate with all-in all-out in farrowing rooms than with a continious presence of piglets, normally 7-8 months will be sufficient.

For larger system, having the possibility to use their best employees for specific tasks will increases their productivity to a certain point, especially when competent people are hard to find.

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Thanks to…

Dr Eduardo Beltranena, University of Alberta
Dr. J.Miclette, D.Dion, Agri-Marché, St-Isidore, PQ
I.Bélanger, Ferme Aldo, St-Lambert, PQ

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