The goal of pig farming

To market as many pigs as possible each week for maximum profit while farming healthy happy hogs

This requires that we wean the maximum number of pigs each week that the grower facilities can handle

To achieve this we need

– To farrow the right number of sows each week – which is usually the number required to keep the farrowing rooms full
– To have enough piglets born alive and survive through to weaning from each farrowing

To achieve this we need

1. To know our mating target and to meet this every week by mating fertile sows and gilts
2. To make sure the matings are top quality to minimise returns and maximise born alive

= MATING MANAGEMENT
Meeting mating targets

• You need to know what they are
  
  = required number of farrowings

  farrowing rate

  i.e. if 25 to farrow/week = 25/0.85 = 29.4 = mate 29-30 females/wk

• You need to meet this target with fertile females
  
  i.e. gilts and weaned sows
  
  – Gilt management is critical to meeting mating targets
  
  – As is having a culling policy for returns

• You need to have good mating management i.e.
  confidence that a return is a sow problem and not a management problem
Mating management - Goal
(assuming sows are fertile and weaned in good condition)

To have plenty of viable sperm at the right place at the right time so as to maximise the number of eggs that are fertilized after they are released at ovulation

To achieve this, we need

- An adequate source of viable semen (boar or AI)
- To mate the sow at the right time during her heat
- To ensure that the semen is properly placed in the sow
- To ensure that this is moved up the uterus to the site of fertilization
Principles/Facts of Life

1. Sows are on heat for a variable length of time
   For weaned sows
   - sows that come into heat first are generally on heat for the longest e.g. 3-4 days
   - sows that take the longest to come into heat are generally on heat for the shortest time e.g. 1-2 days

2. Ovulation occurs when 70% of the heat period is complete

3. Semen generally remains viable in the sow for about 24 hours, although fresh semen remains viable for longer while old semen (>48 hours) remains viable for shorter

4. Sperm do not swim from the cervix to the site of fertilization but are transported up the uterus by contractions

5. Contractions of the uterus occur for a short period (10-15 mins) following oxytocin release by the sow

6. Oxytocin is released during the standing response that occurs when an on heat sow is appropriately stimulated
Knowing when to inseminate or mate your weaned sows

- You need to know when your sows (generally) come into heat post-weaning – this means checking them!
- And you need to know when they (generally) go off heat – this means continuing to run them

You can then work out when they (generally) ovulate!
You can then work out which matings (generally) are the most important

You can then formulate rules for your farm and these should be tailored to your farm, although the following will work on +/- any farm and addresses the differences between individual sows
Knowing when to inseminate or mate your weaned sows = oestrus planning

Weaned sows

- Delay mating in sows that take 3-4 days to cycle after weaning by 24 hours and then mate daily while on heat. **Do not stop after two matings**, but do not force the third, fourth or fifth mating if the sow is coming off heat.
- Delay mating in sows that take 5-6 days to cycle after weaning by 12 hours and then mate daily while on heat. As above, **do not stop after two matings**, but do not force the third or fourth mating if the sow is coming off heat.
- Mate sows that take more than 6 days to cycle after weaning as soon as they are detected on heat and then mate daily while on heat.

Returns

- Delay mating of sows that return by 12 hours and then mate daily while on heat. Follow-up matings should be as above. **Do not stop after two matings**, but do not force the third or fourth mating if the sow is coming off heat.

Gilts

- Mate gilts as soon as they are detected on heat and then mate daily while on heat. If possible mate gilts more frequently than 24 hours, but not if this means that follow-up inseminations occur less than 8 hours after the previous insemination.
Monitor the number of triple and single serves

Do this to review your oestrus plan

– it may be that you are starting mating a day earlier than is necessary and wasting time, boar power or money
– if you are starting earlier than necessary, then there will be more matings with 3 or 4 serves (>25%)
– it may be that you are starting too late which may mean that in some sows ovulation occurs before mating (= very bad)
– if you are starting too late, then there will be more single service matings (>15%)

Review regularly so that you respond to changes before FR goes to pot i.e. oestrus is a moving target that will change with variations in sow condition and season

Note: the accuracy of this review relies on the fact that
1. you continue to run and mate sows if they are still on heat regardless of whether or not they have already had two matings
2. you don’t force a further mating if the sow is starting to come off heat
Putting principles into practice
The challenge!

Managing boar exposure to ensure semen gets from the catheter to the site of fertilization

- Use a boar to provide the stimulation required to initiate the standing response if possible
- Separate the boar and sow for at least three hours prior to exposure (also important if doing supervised natural mating)
- With AI, have the semen and catheter ready when expose sow to boar
- Place catheter when exposure begins to ensure that you get full benefit from oxytocin release
- Allow sow to suck in semen – this is good indication oxytocin has been released
- Continue exposure for 10 minutes after semen taken up to ensure the second and third pulses of oxytocin are released to get good contractions and transport of semen up uterus
Putting principles into practice
The challenge!

How often should you mate the sow or gilt?
(Note that the viability of semen decreases with semen age)

- The ideal period between matings is 18 hours, although large studies show no difference between performance where matings were given every 12 hours versus every 24 hours. 
   - Inseminate every 24 hours when semen is fresh <48 hours or if using a boar.
   - Consider inseminating every 12 hours when semen is old >72 hours (as semen viability decreases with age).

- There is good evidence to suggest that intervals of less than 8 hours between matings are counterproductive - thus don't mate in the morning and again in the early afternoon e.g. there is only 5½ hours between 8 am and 1.30 pm!
Effect of semen age and time of ovulation on fertilization rate

Basically just confirms that performance is better with fresher semen and when you get the timing right!
Putting practice into the piggery
The ultimate challenge!

How can you apply the “ideal” to your farm?

- So long as the principles are applied, it doesn’t matter what the facilities are like, although it will be easier to apply the principles in some facilities than in others.

Applying the principles can be worth 1-2 pigs/litter, 3-4 pigs/yr

Application = staff. Therefore:

- staff often make all the difference between 9.0 and 10.5 weaned per litter

- It is possible for staff to be doing a very thorough and diligent job, but it could all be to no avail if (say) they are inseminating on the wrong day or toward the end of the standing response

- Investing in mating management must include investment in staff to ensure that rewards of their labour are realised