

The Electronic Sow Feeder (ESF) is a feeding system for group housed sows and gilts. Sows enter the ESF feeding stall through a gate which closes behind them, preventing access by any other sow. The feeding system is regulated by a computer which scans the sow's ear tag and delivers the appropriate feed ration for each sow. The ESF provides a non-competitive environment for the sow at feeding and allows individual feeding curves to be programmed for each sow during gestation. Aggression may still occur at the entrance to the ESF as sows compete for entry to the feeding stall.

### ESF

- Provides individual feed curves for each sow
- Balances the benefits of undisturbed feeding and group housing
- Some computer knowledge is important for the operator
- Training of sows is required
- Low levels of aggression when managed correctly
- Able to manage groups with continuous introductions (dynamic) or with stable groups (static)
- Moderate capital cost at conversion due to reduced space and minimal penning requirement
- Minimal reduction in herd capacity OR Minimal increase in barn space requirements

The sows and gilts can enter the ESF at any time of day to consume their daily ration of feed, which minimizes stress and competition. Sows may enter numerous times to finish their daily allowance, or it can be consumed in one visit. This is possible due to the feed being delivered in small amounts as the sow eats, when she leaves the feeder the ration delivery will stop and the computer will calculate the remaining ration left to consume in that 24 hour period.

Daily feed volumes can be easily regulated for each individual sow and adjusted based on body condition score. When the sows are not feeding they are in a group situation, which is important for achieving the benefits of improved fitness and muscle strength. Space requirements are lower than in other systems as only one feeder space is needed for up to 60 sows.



## Additional Management Options

Additional management tools are available in many ESF systems. These may include automated sorting for management processes such as vaccinations, pregnancy checking, formation of groups to be moved to farrowing etc. Colour marking and mineral supplements can also be allocated to individual sows by programming their ear tag numbers into the computer program. Liquid and dry feeding versions of ESF are available. Most dry feed systems also provide water with the feed, as this allows sows to consume their feed more quickly, helping to improve the efficiency and throughput of the system.

The computer system provides real time updates on which sows have fed, and more importantly, on those that have not. A sow not visiting the feeder can indicate ill health or injury, or that the sow has lost her ear tag. Stockpersons should be trained on the use of the computer system in order to get the most from this housing option.

## Training Sows or Gilts for ESF

Some training of sows and gilts is required with the ESF system. When transitioning to ESF all animals must be trained, however, once the initial training is complete, only new gilts entering the system will require training. Some sows and gilts may be cautious and reluctant to enter the feeding station if they have not come in contact with it before. A separate training pen should be used to train the sows and gilts on how to access the feeder system. This system of gated areas allows staff to adjust the size of the entrance and exit pens as the day progresses. Some sows or gilts will need encouragement to enter the feeder. This can be done by placing a small amount of feed on the floor at the feeder entrance to encourage the sow or gilt in. Use of low stress animal handling techniques is also an option to get the sow or gilt into the feeder.

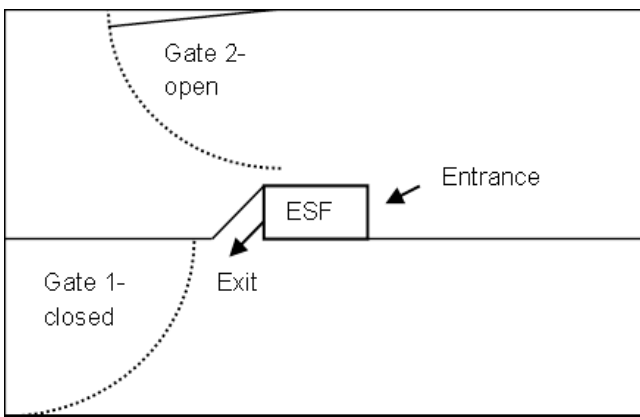


Figure 1: ESF training pen, showing divider gates used to separate fed and unfed gilts or sows. Before feeding commences, animals are moved towards the 'entrance' area and Gate 1 is closed.

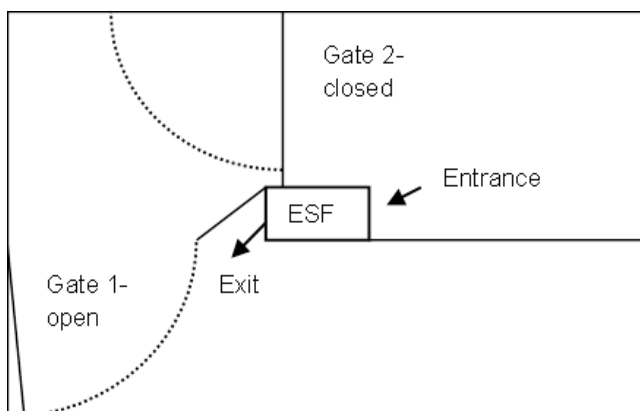


Figure 2: During the day animals move through the feeder, Gate 2 is closed and Gate 1 opened, providing more space on the 'exit' side.

Training pens should consist of groups of 30 - 40 sows or gilts, and training should ideally occur before breeding when any missed feeds will not affect production. Early in the training period, the gate to the ESF can be tied open, and feeders should be well illuminated with overhead lighting to encourage exploratory behaviour of the sows.

Some feeders have a manual training button that, when pressed, will dispense feed when the sow enters, providing an immediate reward for entering the feeder. As sows become accustomed to the ESF, less interference by staff will be necessary and the gate to the feeder can be gradually closed. The training period will take 7 to 14 days to complete. A training pen can also be set up using gates similar to the ESF, but without the ESF unit, in order to facilitate training without the added cost.

Stockpersons with excellent animal handling skills and patience should be responsible for ESF training. It is vital that sows or gilts do not have a negative experience when learning to use the feeder as they can become reluctant to enter. After the whole barn has been trained, the training area will be used only for gilt training. This should also take place prior to breeding. If carried out correctly, gilts will become used to the feeder and to handling as the training progresses.

### **Efficiency of the system**

It is important that the overall design of the pen does not allow sows that have finished feeding to recycle and return back to the feeders, thinking they will obtain extra feed. This problem can be overcome by including walkways to increase the distance between the feeder exit and entrance. This design will discourage sows from returning to the feeding station after consuming their allotted ration.

### **Social Management:**

Once per day, the feeder program is reset to initiate a new round of feeding. This can result in aggression at the ESF entrance gate, as sows will recognise this daily 'event' and dominant individuals will compete to access the feeder. Timing of the reset has been shown to influence aggression, with less aggression occurring at the feeder entrance with a 10pm reset than at 4am. Subordinate sows will be displaced and will access the feeder later in the daily cycle. Because of this, sorting of sows with respect to weight, parity, and body condition score may be desirable. A maximum group size of 60 sows is recommended per ESF unit as this is the maximum number that can be reliably fed per day. Larger groups can be accommodated (e.g. with dynamic grouping systems) by providing additional pen space and multiple feeders.

### **Dynamic Grouping Guidelines.**

It is possible to manage dynamic groups of sows in ESF. New groups of sows are added periodically, and sows ready for farrowing are taken out. When designing the barn always remember to calculate for the maximum number of feeders and floor space required. Some practical measures must be taken to manage the system well and limit the aggression from the change in hierarchy that occurs when adding to the group. When adding sows into the group they should be between 21—38 days pregnant and have been preg checked. The group being added should equate to 20% of the total group. On the day of mixing make sure all sows are fed their full daily ration before adding them to the dynamic group and try to mix in the evening.

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