OUTDOOR PIG PRODUCTION

Outdoor pig production is not new!!

9BC	Woodland Scavenger
Domesday Book	Right of Pannage
18th Century	Cottager's Sty
Industrial Revolution	
1920's	Start of Intensification
1980's	High cost intensive industry
2015	40% Outdoor

Early large scale production

- "Roadnight" system developed in 1950's
- Pigs used as a "break" crop
- Farrowed twice a year - March and September
- Weaned at 8-10 weeks
- Stores sold off the field or finished in straw yards
- Sows based on Saddleback x Landrace (Britwell Blue)
- Productivity low 12-14 weaned/sow/year
- (High cost of fencing)

Growth of the outdoor pig sector (See later for current performance)

- Outdoor pig production doubled between 1985 – 1990 and doubled again to 2000
- In 2015 it now accounts for 40%+ of the national herd.
- Large herd sizes 1000+ sows

Reasons for Growth

1) **Capital cost of setting up a unit** (inc. stock)
£1000 per sow place outdoors
£ 200 per straw based finishing place (approx.£2000/sow)
£2500 per sow place indoors (Breeding and rearing only)
£4500 per sow place indoors with progeny to bacon.

2) **Operating costs** - lower on outdoor unit (e.g. electricity, building costs, labour etc.)
- However Feed efficiency is less good outside and the cost of straw can be an issue in the west.

3) **Countryside politics** - Animal welfare
- Environment & Disposal of waste
- (IPPC does not include outdoor sows, NVZ and Cross Compliance)

4) **Increased productivity** - Improvement in housing and system management
- AI and managed matings

5) **Electric fencing** - More versatile than conventional fencing

6) **Feed and water** - Specialist outdoor feeds and feeding systems
- Use of alkathene water pipes

7) **Breeding Stock**
- Require hardy crossbred sows with good mothering characteristics
(Eg Duroc crossed with Large White or Landrace)

8) **Equipment** - ATV bikes, specialist feed trailers and handling trailer
- Automatic, ad-lib feeders and trough feeding systems

9) Improved identification and record keeping

- Flexible plastic ear tags or electronic responders
- Better recording systems available

Choosing a site for an outdoor unit

1) Climate and rainfall
- Rainfall 30" (760 mm) or less
- Mild winters
- Majority of outdoor herds are in eastern regions

2) Soil Type
- Light and free draining - chalk, gravel, sand
- AVOID heavy clay

3) Topography
- Level or gently sloping
- Under 900' (245 m) otherwise it gets too cold

4) Services
- Must have access to water and electricity

Integration with the arable farm

Benefits
- improved fertility of soil + less use of fertilisers
- regular supply of straw
- help from arable staff
- machinery and workshop facilities

Disadvantages
- Possible conflict with labour at busy times
- Environmental issues may conflict with Cross compliance
- Without nose rings soil structure and field drainage may be damaged

The length of time the land is down to sows depends on climate, soil type, rotation and management (eg Ringing sows and stocking density) Usually 1-2 years. Organic units are required to move to a clean site at every stage to avoid worm build up and improve crop utilisation of manurial nutrients.

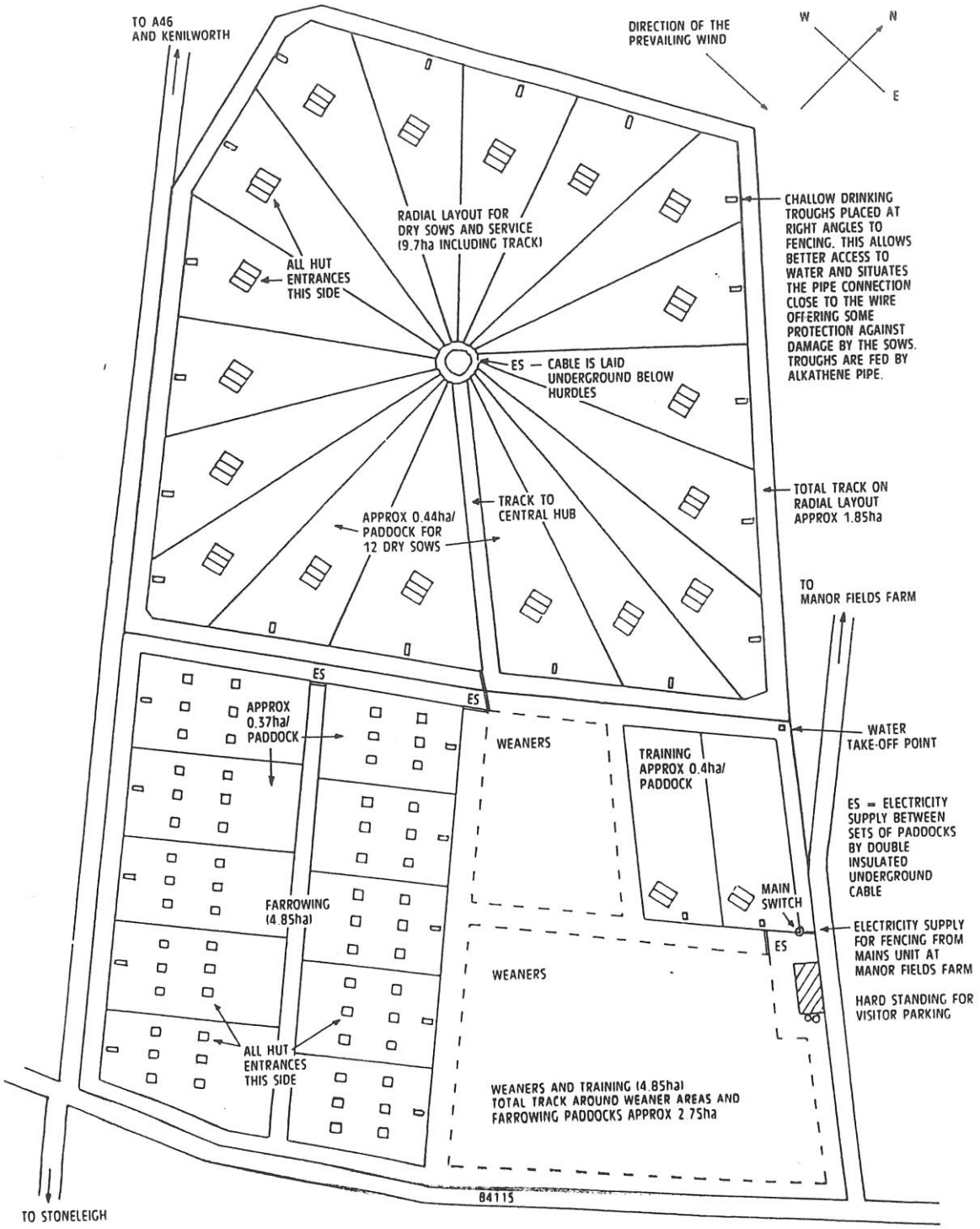
Stocking ratio for outdoor pigs
- **6-8 sows/acre**
- **15-20 sows/ha**

A typical rotation including outdoor pigs

Year 1	Spring sown cereal undersown with ryegrass
Year 2	Silage/hay and grazing by sheep or cattle. Pigs move on in autumn
Year 3	Pigs on grass break
Year 4	Pigs off in September. Winter wheat sown
Year 5	Winter wheat harvest and fallow for winter muck spreading

Conventional square paddock system
Radial paddock system

Figure 1. Layout and Basic Details of Outdoor Unit

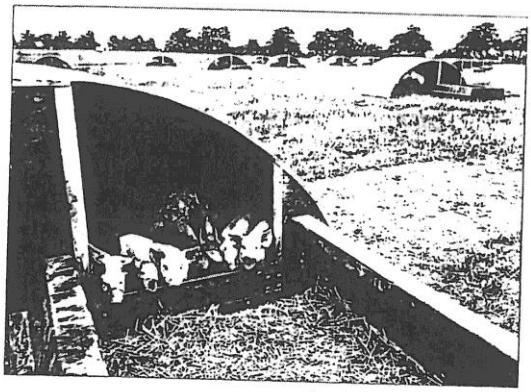


Conventional square paddock system

The conventional layout is used by many larger herds of between 500 and 1,000 sows. Although electric fencing is used to create the appropriate sizes of paddock, they are laid out to take account of the natural field boundaries utilising the different shapes and contours of the field. Several fields may often be utilised by the herd at any one time.

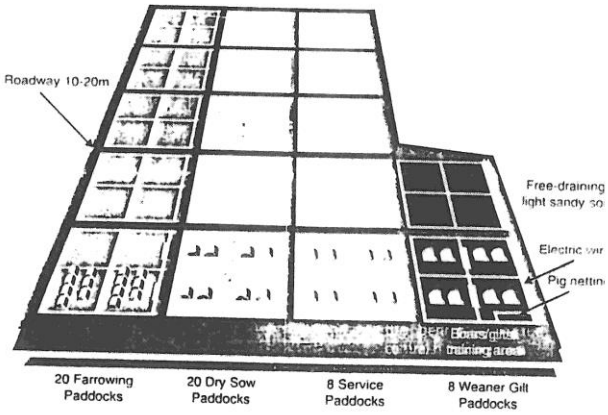
Where sufficient ground is available, all-round access to the paddocks can be achieved, which will reduce ground damage from tractors and trailers.

Breeding stock may be walked quietly from paddock to paddock. Alternatively, livestock trailers are used, especially at weaning and when moving to distant paddocks. In both the radial and conventional systems, weaners are collected up from the huts and moved off site in trailers.



Farrowing on a square paddock system

Typical layout for a 600 sow square paddock system



- 20 Farrowing Paddocks
- 32 Dry Sow Paddocks
- 8 Service Paddocks
- 8 Weaner Gilt Paddocks

Areas required

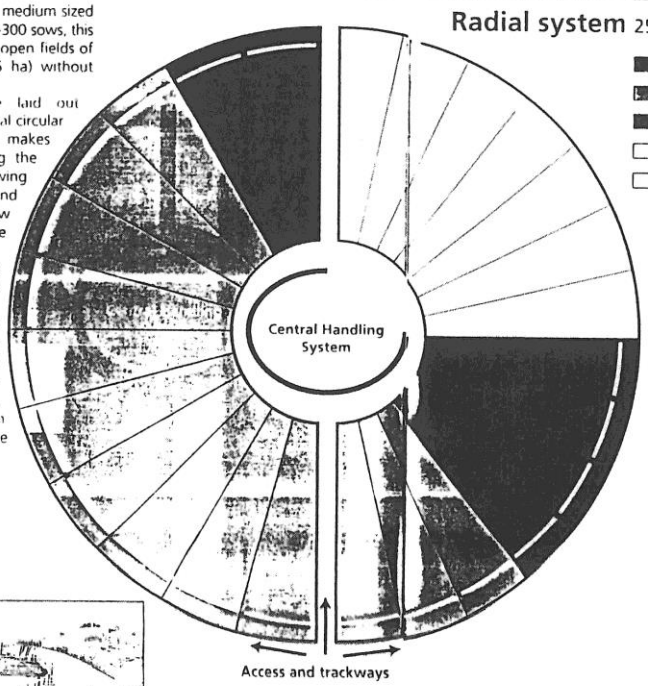
	Acres	Hectares
Farrowing	19	7.7
Dry sow / Service	49	19.8
Weaner gilts	4	1.6
Paths and road	3	1.2
Total area	**75**	**30.3**

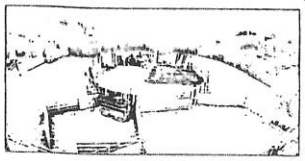
Radial paddock system

Particularly suited to medium sized herds of between 150-300 sows, this system requires large open fields of 19-38 acres (7.5-15 ha) without hedges or ditches.

The paddocks are laid out radiating from a central circular handling area. This makes handling and moving the sows from the farrowing to the service areas and then on to the dry sow paddocks, very simple for one stockperson. The layout also enables easy observation and control of the pigs.

A track around the perimeter fence allows access to each paddock for servicing water points and feeders. Tracks also run from the perimeter to the central handling area.



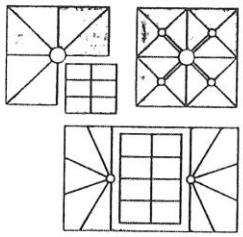


The central handling area of a radial system

Radial system 250 sow herd (31 acres)

- Services paddock
- In-pig sow paddock
- Training and incoming gilt paddock
- Farrowing paddocks
- Water troughs

Examples of possible radial systems



Areas required

	Acres	Hectares
Service In-pig sows and gilts	19	7.7
Farrowing and suckling sows	8	3.2
Maiden gilts/ young boars Training	2	0.8
Access trackways/ central area	2	0.8
Total	**31**	**12.5**

* 1 Sow/acre (2.0 Sows/ha)

Management of the farrowing paddock

1) Always choose **a level site** for the farrowing paddocks
   - slopes are a problem in wet weather
   - uncomfortable for sows and piglets

2) Huts should be sited with their **backs to the prevailing wind**
   - they may need to be staked down in windy areas

3) Allow a distance of **16-18m** between huts
   - if huts are too close sows will be restless and mortality increases

4) Sows should be **moved in –7 days** before their due date
   - Traditionally 6-7 sows per paddock
   - Sows will choose their own farrowing hut (but watch out for "doubling up")
   - Individual paddocks offer better individual management particularly for gilts
   - fenders need to be removed to allow heavily pregnant sows access to hut

5) Correct management of the **straw bedding** is essential
   - the sow will make her own bed but stockman should fill in the gaps to prevent draughts (some huts may have wooden floors)
   - too much straw at farrowing hampers piglet movement
   - fresh straw should be added little and often (i.e. daily)

6) Sows usually **farrow without difficulty**
   - litter should be processed within first day
   - usually all tasks done at same time when sow is feeding as handling piglets with outdoor sows can be dangerous!

7) **Feeding**
   - **same principles as with indoor sow** so it is important that sows farrow within 2-3 days of each other (any late sows should be moved into the next paddock) as sows cannot be individually fed. Problem solved with individual paddocks.
   - feed is usually spread using automatic dispensers or placed in discrete piles so that the sows can eat without disturbance from other sows. Given the high wastage level many producers are moving towards trough feeding outdoors.
   - Many producers are using **ad lib feeders** after the first week which greatly reduces feeding time. (May cause problems in checking sows and litters)

8) **Weaning**
   - usually done early in the morning
   - huts are moved and old bedding burned before next litter

Management of the dry sow paddocks

1) Sows are moved into **service paddocks** at weaning
   - Weekly batch groups 6-8 sows (split large groups by condition and size)
   - second weeks weaned sows may be added to first group to give a total group size of 12-16 (possible problem with reduced embryo survival)
   - Dynamic service groups (21 sows, 3 boars) with 3 sows introduced just prior to oestrus and 3 sows removed after pregnancy diagnosis and second return check. System allows good boar management with little over or under use

2) Natural Mating

- Boars work in **teams**- usually 3 or 4 per team which have been reared together
- traditionally teams of boars are rotated on a daily basis around relatively large groups of sows. This can lead to over and under work by individual boars with poor conception rates overall.
- Dynamic service systems are an option as there is a one to one sow to boar ratio in the service pen which allows better boar management at peak service times to avoid over work.
- Overall boar:sow ration is 1:12
- as boar teams break up, single boars can be used as chasers - to pick up returns (a chaser boar should be present for first 8 weeks once all sows have been served). Boars can, however, be mixed with careful management

AI AI is now the preferred option for mating outdoor sows. Especially in summer to avoid poor conception through heat stress. Producers are using tent structures which provide semi-permanent accommodation for boars and AI facilities. This allows groups of sows to be brought to the boar individually where natural matings or AI can be used, as with indoor systems. Portable temperature controlled AI storage boxes and equipment are now available.

3) **Feeding**

- Similar principle to indoor sows sows are fed to a condition score. Will need to add 0.5kg/day at each stage to compensate for increased exercise and the cold.
- feed cost per tonne is greater as it is fed in the cob form which takes and additional process in manufacture they are double pelleted.
- May get some wastage in wet conditions and there can be a problem with birds taking food and transmitting disease (eg Salmonella). Many producers are moving towards trough feeding

4) **Wallows**

- mud wallows should be provided for all stock to enable them to keep cool in summer (mud also has a "sun screen" effect)
- Shade areas using netlon type material may also be used.
- Insulated Arc's with large ventral openings help reduce heat stress and encourage suckling

Management of the newly weaned pig

Options for weaners

- may be sold "off the field" at weaning at 21-28 days (7-8kg)
- may be kept in specialised accommodation until about 10 weeks before either being sold as stores to be finished elsewhere. (Cosikennel)
- may be finished on the farm in suitable accommodation e.g. straw yards

NB Organic Producers finish pigs outdoors often in a free range situation. At normal commercial prices these finishing systems are less economically viable with relatively high FCR.

Potential problems with outdoor pigs

1) Losses of piglets due to predators (foxes, crows and people!) Install a perimeter 7 wire electric fence.
2) Difficult management due to poor site conditions
3) Shortage of trained, motivated and fit staff!
4) Relatively poorer feed efficiency which has a disproportionate impact as feed prices rise

Comparison of performance between indoor and outdoor herds

Note that in general output is lower in outdoor herds with lower litter sizes and increase mortality of piglets. This results in a higher feed cost per pig weaned. Mating management i.e. litters per sow per year seems to be comparative. Overall recent trends show performance increasing, however, Indoor performance is rising faster with the difference between indoor and outdoor now standing at 4 pigs per sow per year.

	Average		Top 10%	
	Outdoor	Indoor	Outdoor	Indoor
Average No Sows in Herd	874	586	704	505
Farrowing Rate %	81.5	83.2	88.5	89.8
Litters/sow/year	2.2	2.29	2.38	2.38
Reared/sow/year	21.5	25.7	25.2	29.6
Born alive	11.3	12.7	12.3	13.8
Born dead	0.45	0.71	0.56	0.73
Reared/litter	9.75	11.22	10.59	12.42
Mortality (%)	13.8	11.29	13.56	9.66
Weaning wt (kg)	6.93	7.25	7.26	7.25
Age at weaning	26.3	26.5	25.9	27.1
Kg weaned /sow/year	149	186	183	214
Tonnes Feed/sow/year	1.7	1.33	1.6	1.29

(Source AHDB Pork Performance Web page updated June 2015 - Agrosoft data base)

Further reading:

AHDB Outdoor Pig APP Short video clips of Outdoor pig management
Report on the welfare of pigs kept outdoors. FAWC 1996
Early trends Easicare 1996 page 34 -36
AHDB Pork Pig Year Book 2015
Pig Production Problems. John Gadd (Nottingham University Press)
Outdoor Pig Production. (Chalcombe).
Outdoor Pig Production. Keith Thornton. Book and Video (Farming Press).