



WOODLAND POULTRY AND PIGS

Feasibility study into the potential of incorporating poultry and pigs into woodland management for producers in Powys.

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Executive Summary

There is growing interest and demand for meat and eggs that have been produced in systems that allow animals to express their natural behaviours. There is also a growing interest in managing woodlands using foraging animals. Animals that are able to express their natural behaviour (such as foraging in the case of pigs and poultry) tend to be healthier and consequently this impacts on the quality of the final product such as the meat or eggs. Products of high quality can demand a market premium, as indeed can products from welfare and environment friendly systems. Chickens reared under the French Label Rouge system (woodland and pasture) attract a higher premium than free-range birds both in France and abroad. There is now a demand from producers, retailers and consumers for information on locally available produce from high welfare and environmentally friendly production systems.

Pigs are gaining in popularity as woodland managers. However, as their role is mainly as a scarifying tool, they cannot be maintained in woodlands all year round. It has been found that pigs can be used beneficially in various woodland management options. They are excellent at clearing brash and scrub, and can be used to manage the removal of bracken and bramble for replanting or clearing paths for game shoots. They have also been used for the removal of invasive Rhododendrons in Scotland. Such practices allow for the reduction in both pesticides and machinery in woodland management.

The concept of keeping poultry in woodland has evolved in recent years, although historically this is where poultry would have been found. The movement away from factory farming of birds has allowed for organic and free-range systems to develop. Poultry are woodland creatures and feel vulnerable in open areas such as large fields. Therefore by introducing trees and shrubs into these fields, the poultry will explore the area more thoroughly and move away from the hen houses.

Producers of pigs or poultry in a woodland system would be able to use the image of animals bred in natural surroundings and to very high welfare surroundings as a unique selling point. The product could be differentiated through the use of rare or traditional breeds and the difference in taste associated with the meat or eggs of the animal. Therefore it is important that value is added to the products where possible. It is likely that most success will be had in exploiting niche markets, and it is important that if contracts through supermarkets are to be sought, that the producer concentrates on upmarket stores such as Waitrose, Marks & Spencer and Sainsbury's, as these stores will pay premiums for woodland, organic and free range pigs and poultry, as will their customers. However, maintaining supply will be paramount when working with supermarkets. Smaller producers may wish to concentrate on local markets including restaurants, local butchers, direct selling and Farmer Markets.

Producing poultry and pigs from woodland based enterprises is feasible within Powys and Wales. However, the scale of production will determine which marketplace the final product will sell in. Potential producers should investigate the market thoroughly including likely production output, costs, adding value and retail opportunities.

Introduction

There is growing interest and demand for meat and eggs that have been produced in systems that allow animals to express their natural behaviours. There is also a growing interest in managing woodlands using foraging animals. Pigs and poultry have evolved within a woodland ecosystem and are an obvious choice for managing native woodlands in a sensitive and environmentally friendly way. Through time and their domestication, both pigs and poultry have been bred to live indoors under artificial conditions. In recent years, this intensification has been scrutinised for its negative effect on animal welfare and the animals' inability to show natural behaviour in such restricted conditions.

Animals that are able to express their natural behaviour (such as foraging in the case of pigs and poultry) tend to be healthier animals and consequently this impacts on the quality of the final product such as the meat or eggs. Products of high quality can demand a market premium, as indeed can products from welfare and environment friendly systems. Chickens reared under the French Label Rouge system (see page 5) fetch a higher premium than free-range birds both in France and abroad. French consumers will pay a 100% premium on Label Rouge birds compared to standard birds (Westgren, 1999).

The market for products such as pork and chicken reared in woodlands is not currently well researched. However, at present many local butchers are unable to source pork from local outlets. Chickens from the Label Rouge system are also imported into the UK at a premium price. Currently there are more horses than pigs in Wales (P. Morgan, HCC, Pers. Comm.). According to the Welsh Meat and Livestock Compendium (2005) only 897 holdings in Wales are involved in pig production. In Powys, 129 holdings have pigs, which is approximately 14% of the total Welsh holdings involved in pig production, but only 1.8% of the total holdings in Powys. Although Powys accounts for 14% of the total holdings with pigs, 23% of the total pig herd is maintained in Powys. Poultry statistics are not available by region or holdings for Wales, however the number of poultry maintained in Wales was 6,071,963

in 2002, which represents a drop of 4.1 million from 2001 (Wales Agricultural Statistics, 2003).

There is a demand for more information from producers in Powys on woodland pigs and poultry both in terms of management and markets. It is the intention of this report to outline the systems and potential market.

Systems have been developed in recent years that allow poultry and pigs to live partly outdoors in a free-range environment. Niche markets have also developed for producers who have been able to develop the systems further to allow more natural behaviour and more natural environment. The popularity of these products with consumers has seen a renewed interest in the area of agri-forestry, in terms of allowing poultry and pigs back into newly planted or ancient woodland to provide shelter, food and management practices for the woodland. Pigs particularly have been shown to clear woodland of scrub and weeds and scarify land for planting new saplings. Incorporation of pigs and poultry into a woodland system may allow a return on the investment to be achieved sooner than relying on returns from timber alone, which can take several years.

The integration of pigs and poultry back into woodland will also allow for the encouragement of rare and traditional breeds to be used. These breeds tend to be hardier than the modern breeds developed for indoor artificial rearing systems, and tend also to have better foraging abilities allowing them to feed efficiently outdoors. Poultry particularly prefer enclosed areas, as in the past their predators have traditionally come from the sky. Therefore they will be more comfortable to range further from the arcs or hen houses under tree cover than in open fields.

Poultry Production

Chickens originated in south east Asia and have spread to all parts of the world. Chickens have been mentioned in early Chinese documents (circa 1400 BC) as well as in Babylonian carvings (circa 600 BC) and early Greek writings (circa 400 BC). Domestic fowl were domesticated from Red Jungle Fowl over 8000 years ago and the basis of many modern breeds were established by Roman times. The Romans had a well established system of poultry keeping but this declined along with the Roman Empire and poultry became farmyard scavengers. In the 19th century interest was re-established in poultry keeping and large scale systems developed. As poultry keeping developed during the 19th Century, the number of breeds also increased. There are now over a hundred breeds and varieties of poultry within the UK. The Poultry Club of Great Britain classifies breeds into five categories; Hard Feather; Soft Feather Heavy; Soft Feather Light; True Bantams and Rare breeds. The hard feather breeds have their origins in the development of birds for cockfighting. The modern hard feather breeds (Old English Game Bantam, Old English Game and Modern Game) are primarily kept for the show ring. The soft feather heavy breeds were developed as table birds whereas the soft feather light breeds were developed for their egg laying abilities. The true bantam breeds are naturally small and have no large counterpart. Initially developed for exhibition and ornamental purposes some have been developed as a utility breed.

Commercial poultry production has concentrated on a few breeds and has developed lines of birds to meet particular production requirements (Ross, Cobb and Hubbard). Many of the breeds have been developed by companies i.e. Ross 308 breed, for use in their systems. Even in traditional systems such as Label Rouge and Label Anglais, hybrids of traditional breeds are preferred. Until recently it was difficult for the small scale producer to buy chicks as the commercial hybrids were only available to factory-sized units in batches of thousands. There are now a number of suppliers who will supply day old chicks in smaller quantities (See Appendix 3). Breeds suitable for table birds include the soft feather heavy breeds (e.g. Orpington, Sussex, Plymouth Rock, Wyandotte) and crosses between hard feather and soft-

feather heavy breeds. The soft feather light breeds are more suitable for egg production and breeds that do well in woodland situations include the Leghorn and the Welsummer. The Araucana is also becoming more popular as a layer as it lays coloured eggs, for which some supermarkets pay a premium (Waitrose). The Araucana lays eggs in shades of blue. A hybrid of Leghorn Barred Plymouth Rock and Araucana (known as the Legbar), has also been created which lays blue eggs and is used for commercial blue egg production. The Cotswold Legbar is used in the commercial production of blue coloured eggs.

The concept of keeping poultry in woodland has evolved in recent years, although historically this is where poultry would have been found. The movement away from factory farming of birds has allowed for organic and free-range systems to develop and head down different paths. Traditionally poultry are woodland creatures and feel vulnerable in open areas such as large fields. By introducing trees and shrubs into poultry runs the birds will explore the area more thoroughly and move away from the hen houses. In recent years, projects have developed Silvopasture, by incorporating pasture with groups or lines of trees growing with the poultry. The idea being that the freshly planted trees will provide shelter for the birds and the birds will graze the grass to allow the saplings a competitive edge. The advantage of such systems is that they will allow return on the area before the trees are harvested years down the line.

Label Rouge Poultry Production

Label Rouge began over 40 years ago as a grassroots movement led by farmers. With the industrialisation of commercial poultry production after the 2nd World War, demand grew in France for the taste of traditionally reared farm chickens. The original farmers agreed to keep only slow growing breeds and maintain them according to a list of free-range rearing conditions and production criteria. The French Ministry of Agriculture recognised what was being done and officially created and formalised the Label Rouge Quality Assurance system.

In 2000, the Label Rouge traditional free-range poultry accounted for 12% of total French Poultry Production (by volume) and 16% of the chickens produced in France. (Source: Synalaf 2000). A total of 112 million birds were sold under the Label Rouge system, approximately 3% of which were exported into Europe.

Label Rouge poultry now account for 30% of poultry sales to the public despite costing twice the price of conventionally reared poultry (Westgren, 1999). However it is interesting to note that French consumers are less keen to purchase organically produced chickens which cost four times as much as a conventionally reared bird (Ibid.).

Label Rouge has five fundamental principles with regards to poultry production. The poultry:

- Must come from special breeds;
- Must be reared in the open air;

Enjoy natural cereal – based feed;

- Have a considerably longer growing period;
- Come with a guarantee of freshness and food safety.

There are minimum standards laid down for Label Rouge broiler production (see Appendix II), however these are a baseline and Label Rouge Filières (supply chains) can include other production criteria to enhance the minimum standards (e.g. require tree and bush plantings to integrate poultry houses into the environment; use smaller portable houses; do not permit pesticide use on the range; maintain a constant feeding ration regardless of ingredient price).

Differences in Filières systems are demonstrated by the Landes and Loue Filières. The Landes Filières was one of the original groups of farmers who began the Label Rouge movement in the Southwest of France. The Landes poultry are raised in pine forests using small portable houses known as Marensines. However, it was the Loue Filière that was responsible for Label Rouge developing into a viable scheme. Loue is one of the largest Filières and represents the more typical production method of stationary houses and

yards. The area immediately outside the house is dirt, however, birds have access to shade bushes and trees as well as access to grassy pasture.

One of the keys to Label Rouge poultry production is the breed of birds used. Slow growing breeds are used, which grow to 2.2kg in 12 weeks compared to conventional fast growing broilers that will reach similar weights in 6-7 weeks. The birds are supplied through poultry breeding companies such as SASSO and Hubbard-ISA. They do not sell actual broiler chicks but supply the parents.

The use of slow-growing genetics and the low density of the Label Rouge production system also offers distinct health advantages and has a lower mortality than conventional systems (3% vs 6% respectively). Label Rouge birds are generally vaccinated for coccidiosis and given anthelmintics in feed. Probiotics are permitted but antibiotics can only be prescribed by veterinarians.

The supply chain (filiere) is one of the keys to the success of Label Rouge. The filiere offers a number of benefits including co-ordination of the stages of production, lower costs, ability to reduce pathogens throughout and complete traceability. A filiere is a supply chain that centres around a group of poultry producers with upstream affiliates (breeding company, hatchery, feed mill) and downstream affiliates (processor, distributor, retailer). It is highly co-ordinated but not necessarily vertically integrated. Some filieres do own hatcheries, feed mills and/or processing plants but some feed mills and processing plants may work with more than one filiere. Each filiere is centred around a quality group which includes producers and associates. The quality group retains control of the brand and makes the pricing, marketing and advertising decisions. The quality group reviews the market prices frequently and adjust the farmers' margin and the consumer price as needed.

The principles behind Label Rouge have been taken up by a poultry producer in Essex, who have created their own system known as Label Anglais Poultry (www.labelanglais.co.uk). The bird used is a cross between the Red Cornish and White Rock. Due to the proximity to the London market, Label Anglais sell successfully to a number of top restaurants, including the Fat Duck at

Bray and the Waterside (both have three Michelin stars). Although the Label Anglais Poultry label is currently used only to market poultry from Temple Farm (see appendix for contact details), the producers have not dismissed the possibility of franchising the system to other producers. Before franchising the name, the market would have to grow sufficiently, potential franchisees would have to be close to the major market localities (reducing food miles is a fundamental principle of Label Anglais) and be able to produce to the same stringent standards in place at Temple Farm.

Development has also taken place into free ranging poultry in mature woodland and forestry. Here the poultry would feel a lot more natural and would obtain more of their food from the woodland, as they would venture further away from the hen houses. Fencing would still be required to prevent predators such as foxes and badgers attacking the poultry.

Many different systems are currently operating to provide a quality product for the public to buy in terms of egg and broiler production (e.g. Sainsbury's Woodland Eggs). Many of the supermarket buyers are interested in meeting producers with new ideas, however before approaching a supermarket buyer, the producer must have carried out an assessment of the likely output of their business along with the costs. Contacts for individual buyers can generally be obtained through the head office of individual supermarkets. All systems involve the use of more traditional breeds, which are able to forage for food on the woodland floors, at the same time being hardy enough to cope with the British climate although they would still have hen houses to provide cover. Such breeds include the Sussex, Orpington and Plymouth Rock. Such systems have relatively low inputs with low outputs, however this could be altered depending on what quantity of cereals the producer would want to feed the birds. Generally the birds would tend to be slower maturing, and the type of market would encourage the larger bird.

There are currently two projects running in the UK looking at Silvopasture production of broiler chickens. Elm Farm Research is working in collaboration with Sheepdrove Organic farm in Berkshire to design, develop and implement an organic silvo-poultry system. The Northmoor Trust in Oxfordshire are managing a Defra funded project called PINE – Poultry in the Natural

Environment. As part of the current study, visits were undertaken to both projects (Sheepdrove – Barbara McLean & David Frost, ADAS; PINE – Lynwen Evans, Glasu).

PINE – Northmoor Trust

The project was started in 2002 with a £300,000 grant from DEFRA. The aim of the project was to investigate whether a commercially viable, high welfare system of rearing free-range chicken could be set-up using newly planted trees and small colonies and to monitor the environmental impact of such a system. The study was conducted at two sites (Wytham and Northmoor) each with eight experimental plots (either with chicken or without chicken areas). Treatments included high and low stocking densities with or without trees. During the first two years of the project, chickens were kept in small arcs at a density of 670 birds per arc. The high density plots consisted of two arcs per treatment resulting in a range area of 1.2m² per bird whilst area per bird within the arc remained constant. The low density plots had one arc per area and provided a range area of 2.5m² per bird (area per bird within the arc was the same as the high density plots). After the first two years new practices were adopted at Northmoor based on the results of the first two years. Current practice at Northmoor has stocking densities of 450 birds per arc and birds are given an area of either 4m² or 2.8m² per bird. Tree plots were planted in October 2002 with commercial coniferous (western Red Cedar, Douglas Fir, Corsican Pine) and broadleaf (Ash, Silver Birch, Wild Cherry, Pendunculate Oak) tree varieties. Day old chicks were bought and reared to day 24 before transferring to the arcs. Pop holes on the side of the arcs allowed the chickens access to the range in daylight hours after day 28. Chickens were grown for a commercial market, to a target of 2.28kg at 56 days. In year 1, Sherwood White chicks were bought and in year 2, Ross 308 chicks were bought. However, at Northmoor only Ross 308 chicks were used in both years, coming into the arcs on day 21 and were sold on at 56 days. The birds weighed an average of 2.18kg deadweight and average a price of £0.56 per kg. The chickens were originally sold to Tesco, however they pulled out of the contract as they felt that not enough birds were being

produced to meet demand. The system has now progressed and Hubbard Light Sussex X Ross birds are used. This is a larger bird than the Ross 308 and is a more “traditional” type of bird. The finished chickens are now sold to Waitrose as part of their Poulet D’ore scheme. The finished chickens are larger and average 3.2kg deadweight and £0.874p per kg. The chickens come into the arcs at 33 days and are finished at 81 days. However, although these birds fetch a higher premium than the earlier system it is not as profitable as birds are on the system longer and therefore fewer are going through the system.

Under both systems all birds were transported to an abattoir for slaughter. This is an additional cost within the system.

Sheepdrove Organic Farm Poultry System

The poultry enterprise at Sheepdrove is large with around 2000 birds per week being produced. It is however run under organic certification and also includes the use of agri-forestry. The breed of choice at Sheepdrove is a traditional slow growing breed, Cornish White X Rhode Island Red. This breed has been selected over a number of trials. The current breed fits the Sheepdrove system as it is a bird that is happy to range outdoors and eats well from a consumer point of view.

Birds arrive on the farm each week as day old chicks and go into the nursery area. In the brooder sheds, a number of trials have been carried out to enhance the environment for the chicks. The brooder area includes small perches, conservatories (where chicks can observe the outside environment as well as acclimatise to daylight changes) and a sound system playing natural outdoor noises. Initially chicks feed from small trays of food and water, however they very quickly start to try out the large feeding bowls and drinkers. The larger feeders and drinkers used in the brooder shed are the same as those used in the poultry houses. As the chicks grow, the feeders and drinkers are raised to a height that is appropriate to the size of bird. Using the same system within the brooder shed and the poultry houses reduces the likelihood of the birds suffering any growth checks with changes to feeder and drinker types.

After 3 weeks in the brooder shed the birds have grown their outdoor plumage and are moved onto the free range housing within the agri-forestry areas. The mobile poultry houses are situated in a 22 ha field and are moved forward onto clean grass after each flock. The houses are moved along lanes of grass and clover, lined with recently planted trees and herbal strips. Each range area also includes outdoor peck feeders and shaded sandpits for scratching and preening. The outdoor feeders and sandpits, along with the agri-forestry layout, encourage the birds to range and forage for food away from the house.

When the birds are mature, at approximately 11 weeks of age, they are carefully caught by hand in the early hours and taken the short journey to the onsite purpose-built slaughterhouse. Catching the birds in low light minimises any stress from the handling.

The houses are then pulled forward onto clean grazing and washed out ready for the next batch.

Birds are sold through the Sheepdrove family butcher shop in Bristol, mail order and in Waitrose as well as wholesale to organic stockists and restaurants.

Sheepdrove also provide a poultry slaughtering service for other small scale organic producers.

Pig Production

The domesticated pig has been around for thousands of years, although wild herds were preferred in Neolithic times due to the inability to herd pigs effectively, unlike sheep and cattle. Early breeds of domesticated pig were descendants of the wild boar and, continuing through the medieval period, pig breeds did not differ from the primitive prick-eared pig.

The domesticated pig was used intensively during Roman times, and it was believed to reduce in popularity after this time. During the Medieval and Anglo-Saxon period, the domesticated pig was kept for long periods in the forests that surrounded pastures and villages at the time. The forests were an invaluable resource for people to fatten their pigs. The pigs fed on acorns and beech nuts and these were supplemented by berries and roots, with bracken being a particular favourite. The main concentrations of pigs were associated with the areas of large forest at this time and not the arable areas of today.

Traditionally during this period a pannage season was opened between 29th August and 31st December. The day-to-day management of these pigs fell to the village swineherders who collected the pigs from households in the morning and tended to them in the day.

Due to the lack of winter food, many of the animals were killed during the earlier winter months. Historical texts have indicated that pigs initially took up to three years to mature, however within a century this had reduced to 18 to 24 months. Often pigs were kept in the forests until mid April, although extra fodder would have to be fed between February and April.

Following the Anglo-Saxon period, the popularity of the domesticated pig decreased as the popularity of sheep increased along with a growing interest in wool across Britain and Europe. Individual pigs were kept by households as a 'cleaning up tool', to feed on waste. It is also thought that this is how the domesticated pig breed started to move away from the traditional hardy types, which were associated with the forests and out-wintering.

Breeding did not significantly improve until the 18th and 19th centuries. Specific breeding programmes were then seen to emerge mainly from the breeding

policy of the aristocracy. Important strides in breed improvement for example took place between 1820 and 1830 for the Berkshire breed. The breed was improved with introduction of Chinese and Siamese blood much of which is attributed to Lord Barrington. Patronage of the Berkshire breed also included Queen Victoria.

During this period the traditional breeds that exist today were created, and from these the cross-bred modern pig of today. Such traditional breeds include the Tamworth, the Berkshire, the British Saddleback, the Duroc, the Gloucestershire Old Spot, the Welsh, the British Landrace, the Large White, the Middle White, the Large Black and the Hampshire. In total there are 13 established pedigree pig breeds within the UK and details of individual breeds can be found on the British Pig Association's website (www.britishpigs.org.uk). The most popular breeds in commercial production are the British Landrace and Large White. However, the Welsh breed was the third most popular breed from the late forties through until the early seventies. The Howitt Committee identified the Welsh breed in 1955 as one of the three breeds on which the modern pig industry should be founded.

Pig production in the UK today is concentrated in large herds with approximately 80% of pigs kept in herds larger than 1000 animals. Over the last 10 years, the national breeding herd has contracted by almost a third to around 470,000 sows (RMIF, 2005). However, advances in genetics and improved husbandry has meant that production has declined to a lesser extent as the number of animals finished per sow and the daily liveweight gain have both improved.

The number of holdings in Wales with pigs in 2003 was 897 and this accounts for 9% of all holdings with pigs in the UK. The majority of holdings with pigs are in England (78%). In Powys, 129 holdings have pigs, which accounts for 14% of the holdings in Wales, however these holdings account for 23% of the Welsh pig herd. Only 1.8% of the holdings in Powys have pigs.

Pigs have been used in woodland management situations extensively in recent years. Traditionally domesticated swine were run in woodland by the rights of pannage. Here local villagers had the right to graze pigs in the

woodland to fatten them on acorns and beach mast, as well as roots and berries.

Pigs naturally root in the undergrowth to find food and feed on roots. Their liking for bramble and bracken especially allows for them to remove this thick undergrowth and 'churn' the soil up. This opening up of the thick undergrowth often allows for the regeneration of seedling trees and ground flora such as the Foxglove. Pigs tend to prefer to eat brambles and bracken rather than tree seedlings. This often leads to a good start in life for the tree seedlings, even if the pigs have disturbed the seedlings, the feeling is that more will survive than die, and the pigs have created the greater good.

It has been found that pigs can be used in various woodland management situations to help with the overall management of the woodland. The pigs provide an excellent natural clearing source, and can be used to manage the removal of bracken and bramble for replanting or clearing paths for game shoots. They have also been used in Scotland for the removal of Rhododendrons, which are a poisonous species. Such practices allow for the reduction in both pesticides and machinery use in forest management.

The breed of pig to be used in a woodland situation has been found to be very important. It must be hardy and be a good forager. Also in many cases resistance to sunburn is a useful trait. These traits are required, as the pigs will be left outside for periods where the weather may be harsh, especially in the winter months. These traits are more associated with the traditional pig breeds and include such breeds as the Tamworth, the Berkshire, the British Saddleback, the Duroc, the Gloucestershire Old Spot, and the Welsh. All these traditional breeds have shown promise, allowing management of the woodlands while still thriving and creating a good food source. The meat produced sells well to niche markets at the present time. There are a number of producers selling traditionally reared pork through websites, local markets and regional food directories, however, there are few producers marketing their pork as woodland reared.

Wild boar have also been used successfully for woodland management, however there are some downsides to keeping wild boar. These include

licensing by the local council to keep Dangerous Wild Animals, which involves the local council approval of fencing and management arrangements and an annual inspection. Strong fencing with an electric wire at snout level is essential and must be well maintained. Sufficient land is also required to move the boar on and separate them into young and mature animals. This should be included in any management plan.

Management of Woodland Pigs and Poultry

For both pigs and poultry it is essential that they do not suffer in woodland conditions through lack of food, water and shelter. There are welfare codes for pigs, laying hens and meat chickens available from Defra. Although these codes do not deal specifically with animals in a woodland environment, their general principles apply.

As pigs are generally used in woodlands to clear brash and scarify areas, they are unlikely to be maintained in woodlands all year round. The choice of breed is particularly important when using pigs in woodland systems.

Traditional breeds are best suited to outdoor systems, with the Tamworth breed being particularly suited to foraging due to its long flexible snout. Pigs must be provided with a shelter in each grazing area. The shelter can be made from a variety of materials, from large straw bales with a plywood or box-profile roof through to specially designed pig arcs.

There are no definite recommendations for stocking rates of pigs in woods as in many cases it depends on the management objective. However, the very minimum is two animals as pigs are very social animals. Pigs should be kept either in family groups or in same age and sex groups. Pigs should be kept in the woodland until approximately two thirds of the site is scarified, then moved on to avoid boredom on the part of the pigs. Signs of boredom include escaping pigs. Pigs should be fed a feed supplement even when in the woodland to ensure a balanced diet. Supplementary feed can be used to encourage the pigs into areas of vegetation where they have not been active. It should be noted that the feeding of domestic or catering waste to pigs is prohibited under the Animals By-products Act 1999.

Cases of acorn poisoning in pigs are rare, although they can occur where pigs with no prior experience of acorns are introduced to areas rich with acorns. Cattle and horses are more susceptible to acorn poisoning and traditionally pigs were used to clear pasture of acorns before turning out cattle or horses. All animals should be removed from the acorn source at the first signs of acorn poisoning (constipation, abdominal pain followed by haemorrhagic diarrhoea). Signs generally occur two to three days after ingestion. If caught

early enough removal from the source is generally enough to allow the animals to recover. More severe cases will need veterinary intervention.

Although stock ranging in woodlands can present a particular challenge for regular stock inspections, these must be carried out at least once a day. Any sick or injured animals should be treated as soon as they are discovered.

As with pigs, the breed of poultry chosen for outdoor/woodland systems should be suitable for the system. Poultry reared in woodlands or agri-forestry systems must be given protection from adverse weather conditions, predators and risks to their health, and should at all times have access to well drained lying areas (Welfare of Farmed Animals Regulations 2000). Birds should be inspected twice daily and receive a diet suitable to their production needs. Birds should be encouraged to range within the designated area; however it should be noted that land on which range birds are kept for prolonged periods may become “fowl sick”. Appropriate measures should be taken to prevent fowl sickness or to provide a new ranging area by moving the housing unit or rotating the range area outside the housing building.

In the systems used at Sheepdrove farm and PINE (Northmoor Trust), the housing units are mobile and are moved onto fresh grazing for each new batch of chickens. In addition, the sheds are washed down and disinfected between batches.

Biosecurity and notifiable diseases

Biosecurity means reducing the risk of disease occurring or spreading to other animals. Good biosecurity can be achieved through good management and husbandry practices; good hygiene; reducing the stress in the herd/flock and effective disease control systems such as vaccination and worming programmes. Incoming stock present the biggest risk of introducing new diseases or infestations to the herd. Information on the health status of new stock should be sought from the vendor before purchase. This information should include details of routine vaccination and worming programmes. All new stock should be isolated for a suitable quarantine period before joining the main herd/flock. Where possible, visitors to the unit should be minimised. Essential visitors should follow disinfection procedures and where possible

wear clothing and footwear provided by the unit. A pest control programme should also be in place. More information on biosecurity can be found in the Defra publication “Better biosecurity provides peace of mind, health stock and a more viable business” (see bibliography for details).

There are a number of notifiable diseases that apply to pigs and poultry. If you suspect that any animal is suffering from a notifiable disease it is a legal requirement to report it to a Divisional Veterinary Manager of Defra as soon as possible. Table 1 includes the main notifiable diseases for pigs and chickens but this is not an exhaustive list.

Table 1 Notifiable diseases of Pigs and Poultry

<i>Diseases of Pigs</i>	Disease of Poultry
African Swine Fever	Avian Influenza
Anthrax	Newcastle disease
Aujeszky’s Disease	(Paramyxovirus of pigeons)
Classical Swine Fever	
Foot and Mouth Disease	
Rabies	
Swine Vesicular Disease	
Teschen disease	
Vesicular stomatitis	

As the risk from avian influenza increases, poultry producers should follow all current recommendations from the Office of the Chief Veterinary Officer, Wales and Defra. Relevant information is continually updated on Defra’s website.

(<http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/index.htm>). A handbook outlining responsibilities of poultry keepers is also available (<http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/pdf/separating.pdf>).

Woodland Management Using Pigs and Poultry

The incorporation of livestock into a woodland habitat in the past has often led to damage being caused to the habitat, either through overgrazing of certain areas or from increased poaching or compaction during wet times. These problems have often led to permanent or temporary damage to the woodland and have often prevented natural regeneration, and encouraged more common invasive species.

However, in recent years, much research has gone into the ability of woodland habitats to regenerate and what effects different stock, breeds and stocking rates have on the woodland habitat. There are now a number of sites throughout the UK using livestock to manage woodlands.

It has been found that certain stock can have beneficial effects on the woodland environment if managed appropriately. Also the incorporation of livestock into plantations can increase the output generated in such Agri-forestry schemes. In Scotland, the development of a woodland grazing animal grant is about to be piloted on the West coast (SFGS Stewardship Grant S9: Controlled livestock grazing in woodlands). Agri-environment payments for grazing woodland or managing woodland using livestock, will go some way to off setting the costs.

Pigs have the ability to manage woodland very well under certain situations. The use of pigs can help reduce the need for chemicals and mechanical interference on scarification sites. They can also importantly help in the removal of invasive exotic weeds such as the Rhododendron (Wild Boar, Scotland; <http://news.bbc.co.uk/1/hi/scotland/1976881.stm>) which would otherwise need long man hours and even more chemical spray.

Pigs can easily be used to clear the 'brash' and undergrowth of woodland to help regeneration of saplings, woodland pasture and small herbaceous plants. This same clearance can also be used to help movement and access through the woodland for gamekeepers, beaters and woodland managers by creating tracks.

Pigs have been used on many smaller sites where they have been rotated around woodland through the use of movable electric fences. However, unless pigs have been introduced to electric fences at an early age they will walk through them or find ingenious ways of shorting the fence (clever placement of troughs etc). Their ability to search for food such as acorns and beech mast as well as roots, has allowed them to be moved as soon as food is in short supply or the pigs have done the required job.

The incorporation of poultry has also been thought to help encourage the output from woodland areas, while hopefully benefiting the crop of trees. Poultry again naturally prefer woodland, as traditionally they were jungle/forest species. They also have a fear of open spaces, as their predators have traditionally been other birds. Therefore by planting trees in a free-range system it is hoped that the birds will range more freely.

By planting trees in strips, with surrounding ground being planted with a grass/clover mixture, it has been shown that the birds will graze the grass and roam more freely around the free range area. Supplementary feeding is often required, and it has been found that some spraying may have to take place as weeds such as thistles and nettles have been shown to become a problem.

Trees also gain from improved nutrient availability in the form of poultry manure. This added growth and the income from the poultry would reduce the reliance on monetary aid from outside due to the long-term returns associated with trees.

Market Potential

In Wales, poultry meat accounts for £71 million of agricultural output, eggs account for £14 million and finished pigs account for £28 million. This equates to share of agricultural output of 7, 3 and 1% for poultry, pork and eggs respectively (HCC, 2005). However, it is difficult to gauge the size of the potential market within Wales for woodland poultry, as there is little market information readily available.

A small market survey was undertaken as part of this report in Powys. As part of the survey small supermarkets (5), butchers (6) and restaurants (14) were contacted and asked a number of questions relating to product procurement. All those contacted were positive about buying local produce, however not all those contacted completed the questionnaire. Of those who did complete the questionnaire, 3 were supermarkets, 5 were butchers and 6 were restaurants. A copy of the questionnaire along with the results can be found in Appendix 1. Locally produced products were important for the customers of retailers, butchers and restaurants and this was more important than either organic or free range products. All respondents sourced products locally (with Powys and the neighbouring counties) to meet customer demand. For the butchers and restaurant owners, the majority of the produce purchased was sourced direct from farmers or local marketing groups. Retailers tended to source from wholesalers but they did have some leeway to buy from local sources. The majority of respondents expected to pay a premium for organic but not necessarily local produce. Restaurant owners added the caveat that quality was the main driver of price and they would expect to pay more for high quality produce. All respondents expressed an interest in woodland reared produce but a premium would only be paid if the quality of the product was high. The majority of respondents indicated that there was more value in marketing the produce as local rather than as woodland reared.

The results of this relatively small survey suggests that there is a market for woodland based livestock products but that it must be of a high quality to achieve a premium with local retail outlets. Any producer thinking of setting

up a woodland-based livestock enterprise needs to research the market thoroughly beforehand.

Producers of pigs or poultry in a woodland system would be able to use the image of animals bred in natural surroundings and to very high welfare surroundings as a selling point. The product could be emphasised through the use of rare or traditional breeds and the difference in taste associated with the meat or eggs of the animal. Therefore it is important that value is added to the products where possible and the use of farmers' markets is a way of increasing profit by this means.

Currently woodland eggs are supplied to Sainsbury's and they command a premium in the supermarket. Standard eggs currently retail in Sainsbury's for 9p per egg, medium size free range eggs at 8p per egg and medium size organic eggs at 21p each. Free range Woodland eggs (medium size) retail at 18p each and Organic Woodland eggs at 28p each. It is likely that this will remain a niche market, however, and it is important that if contracts through supermarkets are to be used that the producer finds "upmarket" stores such as Waitrose, Marks & Spencer and Sainsbury's, as these stores will pay premiums for woodland, organic and free range pigs and poultry. Other supermarkets do have a local buying policy such as Co-op, Spar, Asda and Morrisons and this be a more viable option for the smaller scaled producer. Several of the supermarkets are happy to be approach with new ideas from producers. Before approaching a supermarket buyer, the producer must carry-out a through evaluation of the business including, costs, likely production/output, risks, legal requirements and market potential. Assistance in producing a viable business plan is available through Farming Connect (tel: 08456 000 813 or www.wales.gov.uk/farmingconnect/).

Producers who set up their own production facilities that allow them to sell directly to the public can again add value to their product. Although this may require investment in processing equipment, careful researching of the market can increase sales and profit.

Markets can be made through the use of the Internet and e-commerce. Further information on e-commerce opportunities for producers is available

from Opportunity Wales (www.opportunitywales.co.uk). Examples of Powys producers using the internet for direct selling are

Elan Valley Mutton - www.elanvalleymutton.co.uk

Clyro Hill Farm - www.clyrohillfarm.co.uk and

Graig Farm Organics – www.graigfarmco.uk.

Other Powys producers have listings in on-line directories such as Castlering Organic Woodland Pork listed in the Food from Britain website

(www.regionalfoodanddrink.co.uk/directory/additional_information.php?selector=6681) and the Riverside Market website

(www.riversidemarket.org.uk/suppliers.htm) to list a few

Farmers' markets are gaining in popularity with both the producer and the consumer. They provide an opportunity for producers to sell direct to their local market. Information on Farmers' markets is available through the National Association of Farmers' Markets (www.farmersmarkets.net) as well as from Farmers' Markets In Wales (www.fmiw.co.uk). Both sites list all official Farmers' Markets in Wales along with contact details, locations and dates.

Financial data for poultry production and pig production

As part of the PINE project full costings were undertaken and these are detailed below.

Table 2 Detailed costs attached to the production of a 2.18kg chicken at 56 days in the PINE small colony system

	<i>£ per bird</i>	<i>£ per kg</i>
Production costs		
Day old chick	0.220	0.101
Brooder housing	0.037	0.017
Finishing arcs	0.206	0.094
Bedding	0.066	0.030
Gas	0.030	0.014
Electricity	0.007	0.003
Water	0.020	0.009
Feed	0.844	0.387
Feed silo/feed vehicle	0.055	0.025
Veterinary including vaccine	0.041	0.019
Sanitizer (clean-out)	0.005	0.002
Move to field arcs	0.009	0.004
Labour	0.370	0.170
Repairs & maintenance	0.012	0.006
Pest control	0.009	0.004
Fencing	0.005	0.002
Other capital costs	0.006	0.003
Land	0.010	0.005
Central administration	0.084	0.038
Finance	0.207	0.095
Other	0.007	0.003
Total cost – Farm Gate	2.25	1.03
Catching	0.036	0.017
Transport	0.071	0.032
Total cost – Post Farm	2.36	1.08
Sale price – Farm	2.83	1.30

Reproduced from Defra, 2004

In the PINE system the rate of feed conversion and cost of production was highly variable between batches and between years. This had a major impact on the profitability of the enterprise. Labour costs are also much higher in small colony systems. In the PINE system 16.5% of production costs were attributable to labour costs and 37.5% to feed costs. There were also costs associated with catching and transporting the birds to slaughter. This could be costly depending on the distance that needs to be travelled, although

currently there are eight approved slaughtering facilities in Wales for poultry (see Appendix III).

Gross margin data for commercial free-range poultry is given in Table 3 as an example. An increased premium may be obtained for eggs marketed as woodland eggs. Evidence from Sheepdrove suggests that feed costs may be lower in summer, as broiler chickens supplement their diet with insects etc. It is assumed that layers would also supplement their diet when ranging in summer. Smaller mobile housing units will cost between £14 and £20 per bird to set up.

Table 3: Gross Margin data for egg production (£/bird)

	<i>Free Range</i>	<i>Organic</i>	<i>Cage</i>
Egg returns	16.50	35.00	10.33
Less Livestock depreciation	2.80	3.50	2.60
Output (per year)	13.70	31.50	7.73
Variable costs			
Food	5.93	13.50	4.89
Miscellaneous	1.16	1.20	1.20
Total variable costs	7.09	14.70	6.09
Gross Margin	6.61	16.80	1.64

Source: Farm Management Pocketbook (2006), Organic Farm Management Handbook (2002/03)

It is assumed that woodland egg producers would gain a premium somewhere between organic and free-range premium. It is interesting to note that in 2004 Sainsbury's stocked Woodland organic eggs in favour of Soil Association (SA) Organic Select eggs. This was mainly due to the high production costs associated with SA eggs compared to other organic systems, which had to be passed onto the customer.

Gross Margins for table bird production are given in Table 4. For the conventionally reared birds it is assumed that they are sold at 43 days and weigh 2.65 kg. In comparison, organic poultry are finished at 81 days and weigh 2.0kg. Whilst gross margins per bird for organically reared poultry are higher in this example, fewer birds can be reared per year compared to a similar sized conventional system.

Table 4: Gross Margins for Table Birds (£/bird)

	Organic	Conventional
Returns	7.00	1.38
Less cost of chicks	0.55	0.24
Total Output	6.45	1.14
Variable costs		
Feed	2.38	0.74
Miscellaneous	0.50	0.11
Total Variable Costs	2.88	0.85
Gross Margins	3.57	0.29

Source: Farm Management Pocketbook (2006), Organic Farm Management Handbook (2002/03)

The gross margins presented in Table 4 do not include slaughter costs, housing costs or labour. Labour costs per bird in a conventional system are approximately 8.0p, depreciation costs of housing within a conventional system are approximately 5.0p per bird. Thus reducing gross margins per bird to 16p per bird. Reductions in the gross margin would be similar for organic systems, although slaughter costs may be higher than in conventional systems. Again, it is assumed that woodland reared birds would fetch a premium nearer to organically reared birds.

Gross margin data for outdoor pigs is given in Table 5. Again it is assumed that woodland pigs would fetch a premium nearer to organically reared pigs. The feed costs of a woodland system may be less due to the supplemental feed available from the woodland system, particularly if a pannage system were to be adopted. Using a hardier pig in a woodland system may result in reduced housing costs, however there are no current figures available. Table 6 gives the gross margins associated with outdoor breeding pigs. The figures in Table 5 and 6 do not include capital costs such as housing etc. The minimum cost of insulated arcs is currently around £300.

Table 5: Gross margins for finishing pigs (baconers) (£/pig)

	Organic outdoor	Conventional
Returns	150.00	70.55
Less weaner costs	55.00	34.30
Total Outputs	95.00	36.25
Variable costs		
Feed	60.00	23.10
Miscellaneous	13.00	4.25
Total Variable costs	73.00	27.35
Gross Margins	22.00	8.90

Source: Farm Management Pocketbook (2006), Organic Farm Management Handbook (2002/03)

Table 6: Gross margins for breeding pigs (£/sow)

	Organic outdoor	Outdoor	Conventional
Returns	974	725	682
Less replacements	75	57	35
Total Output	899	719	647
Variable costs			
Feed	362	337	301
Miscellaneous	26	75	66
Total Variable costs	388	412	367
Gross Margin	511	313	280

Source: Farm Management Pocketbook (2006), Organic Farm Management Handbook (2002/03), SAC Farm Management Notebook (2004)

Premiums can be made off niche markets, and locally reared produce. These products are sold under brand names such as Woodland pig meat, rare breeds, traditional/national breeds, healthy-outdoor and natural.

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(<http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/index.htm>)
- Defra publication 7350 Better biosecurity provides peace of mind, healthy stock and a more viable business. Defra Publications, Admail 6000, London, SW1A 2XX tel: 0845 955 600 (copies available free of charge)

Appendix 1: Results of Powys Market Survey and contact details of participants

	Retailers (3)		Local Butchers (5)		Restaurant Owners (6)	
1. Do your customers demand locally produced or organic/free range products?	Local	3	Local	5	Local	5
	Organic	1	Organic	1	Organic	4
	Free range	1	Free range	1	Free range	
2. Do you source local pig and poultry products?	Pig	3	Pig	5	Pork	6
	Poultry	1	Poultry	3	Poultry	6
3. Do you source organic or free-range pig and poultry products?	Pigs	2	Pigs	4	Pig	4
	Poultry	1	Poultry		Poultry	2
4. Do you source direct from farmers or through local producer groups or wholesalers	2 – wholesale 1 – variety 1 - direct		2 – wholesale 1 – variety 2 - direct		1 – local group 3 – butcher 3 - direct	
5. Is it important to you to source local products or organic/free range products?	Local	3	Local	5	Local	6
	Organic/FR	1	Organic/FR	2	Organic/FR	3
6. Do you expect to pay a premium for local or organic/free range products	Local	1*	Local		Local	2*
	Organic/FR	2	Organic/FR	4	Organic/FR	
7. If pig and poultry products were available from a local woodland production system, would you be interested in purchasing them	Yes	2	Yes	3	Yes	5
	Possible	1	Possible	2	Possible	1
8. Would you find more value in marketing woodland reared poultry or pig products to your customers as woodland products, local products or organic/free range products	Local	2	Local	4	Local	6
	Wood-land		Wood-land	2	Wood-land	3
	Organic	1	Organic	1	Organic	1
9. Would you and your customers pay a premium for these products	Yes – more so if organic (1)		Dependent on quality		Dependent on quality	

*premium based on quality

Contact details of participants

Spar Stores

Mr. J.O Davies, Spar Store, Llandrindod Wells Branch, Tel: 01597 822 114

Mr Huw Jones, Spar Store, Caersws & Carno Branches, Tel: 01686 420 550

Mrs Ann Davies, Spar Store, Sennybridge Branch, Tel: 01874 636 561

Butchers

Roger Gough, J. Williams & Son, Pengarth House, Temple Street,
Llandrindod Wells, Tel: 01597 822 331

Bob the Butcher Wales Ltd, Unit 8, Brynberth Industrial Estate, Rhayader, Tel:
01597 810 342

W J George Butcher Ltd, Cross House, High Street, Talgarth, Brecon, Tel:
01874 711 233

Lloyds Butchers, 39 High Street, Welshpool, Tel: 01938 552 683

Morgans Butcher, 103 The Struet, Brecon, Tel: 01874 623 522

Ricardo van Ede, The Griffin, Felin Fach, Brecon, Tel: 01874 620 111

Mr Roger Stevens, Lassawade Hotel, Llanwrtyd Wells, Tel: 01591 610 515

Richard Gardner, Tipple n Tiffin, Theatr Brycheiniog, Canal Wharf, Brecon,
Tel: 01874 611 866

Mr Steven Garrett, The Talkhouse, Pontdolgoch, Caersws, Tel: 01686 688
919

Mrs Mary Ann Gilchrist, Carlton House, Llanwrtyd Wells, Tel: 01591 610 248

Mr Sean Ballington, Llangoed Hall, Llyswen, Brecon, Tel: 01874 754 525

Appendix 2 Label Rouge Standards

Breeds: Only certain breeds are allowed and these are slow-growing breeds suitable for outdoor production.

Buildings: Area of buildings must be no more than 1324m² with no more than four buildings per farm. Each building must be a minimum of 30m from each other.

Stocking Density: The maximum stocking density is 0.3m² per bird. No more than 4400 birds per building. Approximately 1 kg of bedding material is required per bird.

Access and range size: All birds must have access to the range from 9:00am until dusk after six weeks of age and must be outside for at least 42 days of the grow-out period. Range area per bird should be 6.5m². Approximately 2 acres are required per house. 0.37m of pophole exits are required per 31m² of building.

Feed: Ration must contain at least 75% cereal and be non-medicated. Starter rations can be 50% cereal due to a higher soybean content. Rations cannot contain animal products, growth stimulants or other additives. Fishmeal is not permitted. Synthetic amino acids are permitted.

Veterinary: Coccidiostats are allowed but must be withdrawn 5 days before slaughter. Vaccinations are allowed. Antibiotics can only be prescribed by a vet.

Other: Beak and toe trimming are not allowed

Slaughter age: Birds must be grown for a minimum of 81 days

Minimum dress weight: 1kg without giblets

Sanitation period: Minimum period is 21 days between flocks

Transport: No more than 2 hours or 64 miles to processing plant

Processing: Air chilled post slaughter

Shelf life: Sold fresh within 9 days post slaughter

Inspection: Annually per flock (twice a year for hatcheries). Each visit includes bacteriology tests and process control inspections. Taste tests occur five times per year.

Appendix 3: Licensed poultry & pig slaughterhouses within Wales and the Border Marches

NAME	STATUS	TOWN/AREA	LOCAL AUTHORITY	SPECIES
Grampian Prepared Meats	FT	Anglesey	Isle of Anglesey	Poultry
Marshall Food Group	FT	Deeside	Flintshire CC	Poultry
Cranberry Foods Ltd	FT	Abergavenny	Monmouthshire CC	Poultry
Saunders & Stone Partnership Ltd	FT	Castleton	Newport City Council	Poultry
SG Davies & Son	LT	Haverfordwest	Pembrokeshire CC	Poultry
JW&VM Scale	FT	Haverfordwest	Pembrokeshire CC	Poultry
Mr N Davies	LT	Pontypool	Torfaen CC	Poultry
S&J Organics	LT	Carmarthen	Carmarthenshire CC	Poultry
Oriel Jones & Sons Ltd	FT	Llanybydder	Carmarthenshire CC	Pigs
JE Tudor & Sons Ltd	LT	Treorchy	Rhondda Cynon CC	Pigs
WA James	LT	Raglan	Monmouthshire CC	Pigs
LH Phillips	LT	Penclawdd	Swansea CCC	Pigs
W Lloyd Williams	LT	Machynlleth	Powys	Pigs
BWL George	LT	Brecon	Powys	Pigs
TJ Thomas	LT	Ystradgynlais	Powys	Pigs
TWM Ltd	FT	Llanelli	Carmarthenshire CC	Pigs
Cardigan Abattoir Ltd	FT	Cardigan	Ceredigion CC	Pigs
Cig Oen Caron	LT	Tregaron	Ceredigion CC	Pigs
ET Jones, Sons & Daughter Ltd	LT	Anglesey	Gwynedd CC	Pigs
D&J Wrexham	LT	Wrexham	Wrexham CC	Pigs
Jones Bros	FT	Wrexham	Wrexham CC	Pigs
Owen G Owen Ltd	FT	St Asaph	Denbighshire CC	Pigs
J William & Son	LT	Denbigh	Denbighshire CC	Pigs
Hamer International Ltd	FT	Llanidloes	Powys	Pigs
GR Evans	FT	Corwen	Denbighshire	Pigs
Caernarfon Abattoir	FT	Caernarfon	Gwynedd CC	Pigs
DT Havard	FT	Caerphilly	Caerphilly CC	Pigs

Pembrokeshire Meat Company	FT	Haverfordwest	Pembrokeshire CC	Pigs
Freemans of Newent	FT	Newent	Forest of Dean DC	Domestic Fowl
Humza Poultry	LT	Gloucester	Stroud DC	Domestic Fowl
Sun Valley Poultry Ltd	FT	Hereford	Herefordshire CC	Domestic Fowl
Attwell's Ltd	FT	Redditch	Bromsgrove DC	Domestic Fowl
Springfield Poultry	LT	Leominster	Herefordshire CC	Domestic Fowl
Highbury Poultry Farm Produce	FT	Whitchurch	North Shropshire DC	Domestic Fowl
Ensors Abattoir Ltd	FT	Cinderford	Forest of Dean DC	Pigs
PJ King & Son	FT	Gloucester	Stroud DC	Pigs
J Bromhall Ltd	LT	Stonehouse	Stroud DC	Pigs
CE Partidge & Son Ltd	FT	Bromsgrove	Bromsgrove DC	Pigs
RE Williams & Son (Wholesale) Ltd	FT	Weobley	South Shropshire DC	Pigs
AH Griffiths	FT	Craven Arms	Herefordshire DC	Pigs
Bishops Castle Meats Ltd	FT	Bishops Castle	South Shropshire DC	Pigs

Reproduced from Food Standards Agency.

Status: FT = Full throughput, LT = Low throughput

NOTE: As abattoir facilities decline it is likely that some slaughter houses will concentrate on fewer species. This current list includes all slaughter houses licensed to slaughter pigs but does not guarantee that all slaughterhouses still slaughter pigs. This may be particularly true for the large full throughput abattoirs e.g. Hamers' and Oriel's no longer slaughter pigs but are still licensed. Low throughput abattoirs may have a waiting list for slaughtering pigs e.g. Cig Caron currently have a six week waiting list for pigs.

Its is recommended that producers check with each abattoir as to the availability of slaughtering facilities.

It is unlikely that the large slaughterhouses for poultry (eg, Grampian, Marshalls, Sun Valley) will undertake slaughtering for small scale producers not linked to their production system. S&J Organics will undertake slaughtering for other small scale producers.

Appendix 4: Suppliers of Poultry

Table Birds

Meadowsweet Poultry agents (www.meadowsweetpoultry.co.uk), Tel: 01913 842 259 Suppliers of utility birds and Master Gris meat chickens

Neville Tilley, Greenacres Game Farm, Newtown Road, Hainford, Norwich NR10 3LZ, Tel: 01603 891 092. Sells Sasso and Ross Meat hybrids

Kintaline Poultry and Waterfowl Centre, Benderloch, Oban, Argyll, PA37 1QS (www.utilitypoultry.co.uk) Tel: 01631 720 223. Sells utility breeds

Cyril Bason, Bank House, Corvedale Road, Craven Arms, Shropshire SY7 9NG, (www.cyril-bason.co.uk) Tel: 01588 673 204. Sells Ross and Cobb meat chicks.

Coloured Eggs

Kintaline Poultry and Waterfowl Centre, Benderloch, Oban, Argyll, PA37 1QS (www.creamlegbar.co.uk) Tel: 01631 720 223. Sells both Araucanas and Legbars

Mrs L Jackson, Flintshire, Tel: 01352 720 745 Sells both Araucanas and Legbars

Ty-Celyn Poultry, North Wales, Tel: 0132 780 005 Sells both Araucanas and Legbars

Alison Taylor, Anglesey, Tel: 01407 839 119 Sells both Araucanas and Legbars

Abington Poultry, Lincs. Tel: 01652 679 001 Breeders of Cream Legbars

Holditch Poultry, Devon. Tel: 01460 221 602 Breeders of Cream Legbars.