



Adding Value to Organic Milk Production Systems: opportunities for marketing meat and milk from dual purpose breeds

Pauline van Diepen
ADAS Wales

Organic Centre Wales
Aberystwyth
June 2007

Noddir gan
Lywodraeth Cynulliad Cymru
Sponsored by
Welsh Assembly Government



Agri-Food Development Fund

Acknowledgements

ADAS would like to acknowledge WAF Agri-food Development Fund financial support for this work.

Thanks are due to the organic dairy producers and organic finishers interviewed for sharing their experience and opinion. Thanks are also due to Joao Gama and to the QLIF project authors for their contributions.

Published by Organic Centre Wales

P: Institute of Rural Sciences, University of Wales Aberystwyth, Ceredigion, SY23 3AL.

T: 01970 622248.

E: organic@aber.ac.uk.

W: www.organic.aber.ac.uk

Whilst every effort is made to ensure the accuracy of information presented, Organic Centre Wales and its constituent partners cannot accept any responsibility for the consequence of any actions taken on the basis of its publications.

Executive summary

There is growing demand for and supply of organic milk. This results in more organic steers being produced. Many organic steer calves are sold to non-organic producers or are destroyed at birth. This is a serious issue for the organic dairy sector.

This report also provides an overview of the current situation of the meat from the organic dairy sector, identifies opportunities for improving the marketing of organic dairy steer calves and provides a special focus on the use of dual-purpose breeds.

Dual-purpose breeds were more often used in the past. Some organic dairy producers have returned to using dual-purpose breeds such as the MRI (Maas Rijn Ijssel) and the Shorthorn.

Stakeholder interviews showed that the high milk price makes the dairy farmers focus merely on milk production and not on finishing the steer calves. Rearing calves for 12 weeks on organic milk, lacking infrastructure/ buildings and shortage of land seem to be the main barriers for organic dairy producers to finishing organic dairy steer calves.

The Red Meat Industry Forum has stressed the opportunities for finishing organic dairy steer calves as organic beef demand continues to outstrip supply. Case studies show that by using dual purpose breeds in an organic dairy farming system there is a small reduction of the litres milk produced but also a reduction of the total costs (by reducing the replacement costs). It is shown that the Profitability of an organic dairy system using dual-purpose breeds can be similar or slightly higher. In addition, the profitability of finishing dual-purpose steer calves seems to be interesting.

Recommendations

1. There is more research needed about the economics of finishing dual-purpose steer calves.
2. Information about systems using dual-purpose breeds should be widely spread.
3. Finishing organic dairy steer calves should not be seen as a temporary solution to producing/ finishing organic beef. There is a need to develop a permanent solution/market
4. Awareness needs to be raised amongst organic dairy producers about opportunities of finishing of organic dairy animals, as there is little knowledge amongst the organic dairy producers interviewed about the market and price for organic meat from the organic dairy sector.

Contents

Executive summary	i
1 Introduction	1
2 Methodology	2
2.1 Literature review	2
2.2 Interviews	2
3 Results	3
3.1 Literature review	3
3.1.1 Organic dairy breeds in UK	4
3.1.2 Production of meat from organic dairy steer calves	6
3.1.3 Economics of organic dairy farming systems	8
3.1.4 Marketing meat and milk	9
3.2 Interviews	10
3.2.1 Interviews with dairy producers	10
3.2.2 Interviews with organic finishers	11
3.2.3 Interview with Agro- Eco, the Netherlands	12
4 Conclusions	14
4.1 Current situation of the meat from the organic dairy sector	14
4.2 Opportunities for improving the marketing of organic dairy steer calves	14
5 Recommendations	16
6 References	17

1 Introduction

There is growing demand for organic milk which is being met by increased supply. This results in more organic steers being produced. It is not clear what happens to all the steer calves from the organic milk sector. Many organic steer calves are sold to non-organic producers and some are destroyed at birth. This is a serious issue for the organic dairy sector.

There are a number of suggestions for market improvement; one is using dual-purpose breeds. The decision to use a particular breed in the organic dairy sector is based on several factors. Marketability of steer calves is an important factor.

Dual-purpose breeds were more often used in the past. Some organic dairy producers have returned to using dual-purpose breeds such as the MRI (Maas Rijn Ijssel) and the Shorthorn.

The objectives of this project are to:

- Provide an overview of the current situation of the meat from the organic dairy sector
- Identify opportunities for improving the marketing of organic dairy steer calves.
- Examine specifically the use of dual-purpose breeds.

2 Methodology

To address the objectives of the project, a literature review and stakeholder interviews (29) were conducted.

2.1 Literature review

A number of published reports and data sources on finishing and marketing of steer calves and use of dual-purpose breeds were consulted. The majority of these focussed on the UK market, but developments in a number of other European countries were also reviewed. This desk research aimed to provide an overview of the organic dairy supply chain, characteristics of breeds used in the dairy sector and to identify important issues in the production of meat from dairy calves.

A list of the organic dairy producers and organic finishers consulted is provided in an appendix to this report.

2.2 Interviews

To build on the literature review and gather views of those involved, 24 organic dairy producers and 5 organic finishers were interviewed.

Twenty interviews with organic dairy producers were conducted over the telephone and 4 interviews were conducted face to face. In total, 4 interviews were conducted with organic producers using dual-purpose breeds and 20 with those not using dual-purpose breeds.

Through these interviews, views on the key issues relating to the market for meat of organic steer calves were obtained. The discussion in the interviews focussed in particular on market drivers and constraints, opportunities for development and how the organic sector could be developed in the future.

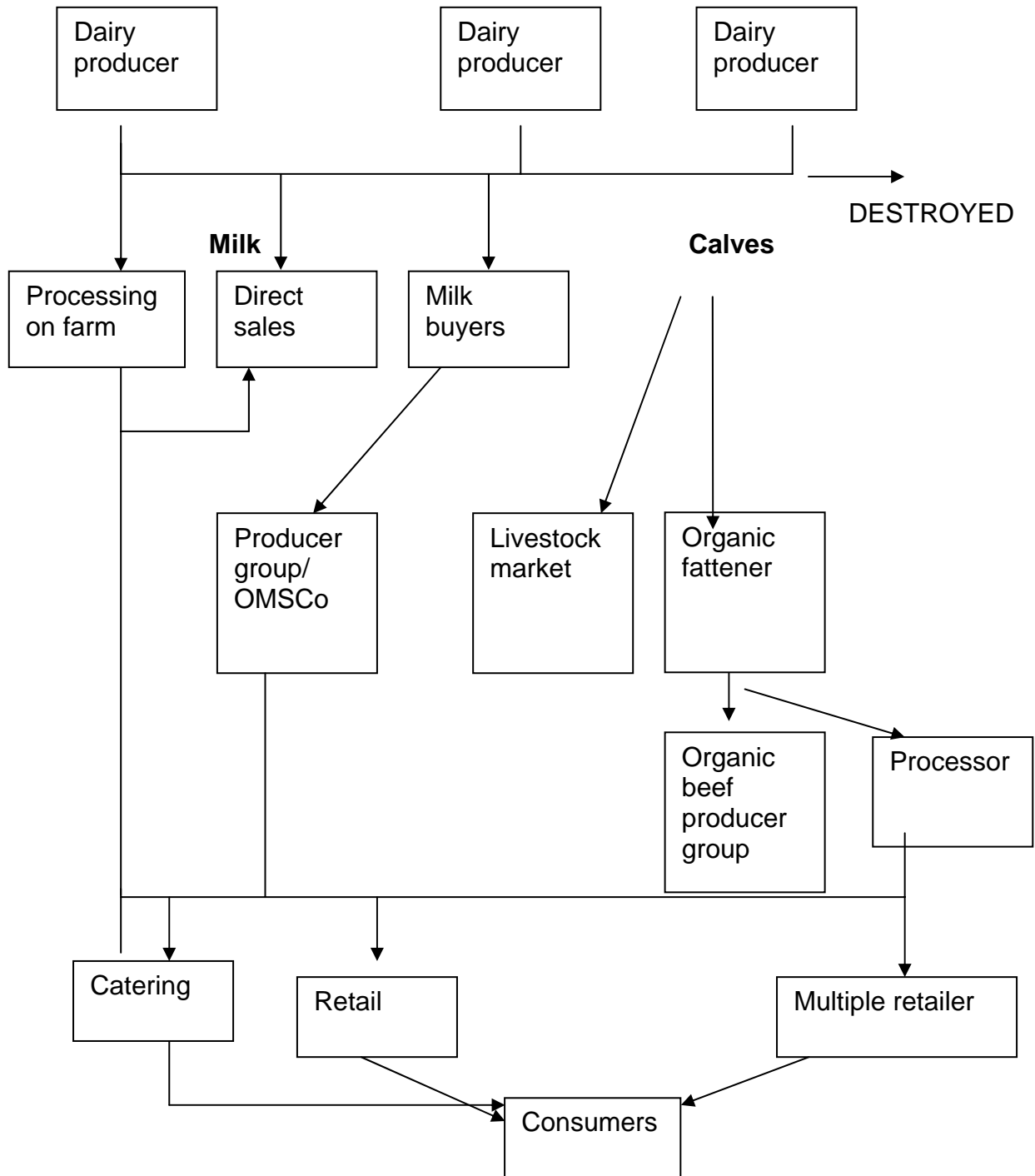
A structured discussion guide for all stakeholder interviews, with the same set of questions asked of each interviewee, was developed. The discussion guide is included in Appendix 1 of this report.

3 Results

3.1 Literature review

Figure 1 illustrates how milk and calves are distributed by processors and finishers via producer groups and retailers to the consumers. However, a number of organic calves are destroyed at birth.

Figure 1 Organic dairy supply chain



Source: Adapted from Nicholas (2007) pers. comm.

According to the Soil Association (2006), around half of the national dairy herds breeding in the UK aim to produce replacement dairy heifers. They suggest that the resulting male calves are not normally considered suitable for quality beef production, however research in Ireland on finishing dairy calves showed that the meat quality of dairy breeds is as good as from beef breeds (Lively et al., 2005). See section 3.1.3.

In the UK, a proportion of dairy calves is killed at birth. In the organic sector a proportion of calves is also killed at birth or, as noted by the Soil Association, calves both from the national organic dairy herd and from suckled store cattle may end up in the non-organic market.

Reducing the loss of organic dairy calves and beef stores to the non-organic market emerged as a key priority at the Soil Association's Organic Beef Conference, 20 March 2007 at Stoneleigh Park, in Warwickshire.

The Red Meat Industry Forum (RMIF) report that organic beef demand continues to outstrip supply. They suggest that an additional 15,000–20,000 head of finished cattle will be required by 2010 to satisfy the demand if the market continues to grow at current levels. (RMIF, 2006)

According to the Soil Association, the number of cattle required could be even higher than the 15,000-20,000 mentioned by the RMIF if the amount of organic beef imported could be reduced by sourcing nationally. (www.soilassociation.org.uk). According to Phil Stocker of the Soil Association and RMIF (2007) this demand could be met by finishing dairy bred calves and store cattle.

Research undertaken in a number of countries has investigated the use of organic dairy-bred calves for meat consumption. (See also Section 3.2.5).

As long ago as 1974, Cunningham (1974) suggested a number of methods to increasing the ratio of beef to milk produced, including:

- Increasing the weight given to beef traits in selecting dairy or dual-purpose cattle.
- Use of the "once-calved heifer" system.
- Breeding a certain proportion of dairy or dual-purpose cows to bulls of a specialised beef breed.

3.1.1 Organic dairy breeds in UK

In 2002, DEFRA published a report which demonstrated the domination of the dairy industry in the UK by the Holstein breed. Defra argued that the Holstein dominance is so great that the next three most popular breeds (Jersey, Ayrshire and Guernsey) comprise merely 4.5% of the pure-bred population (DEFRA, 2002).

The survey undertaken as part of this research looks at the current breeds used in the organic dairy sector. The most common breeds were British Friesian and Holstein Friesian crosses (See section 3.2)

A survey undertaken by Nauta et al. (2006) in the Netherlands suggested that use of different breeds is a result of different production and marketing strategies. They suggest that specialist organic dairy farmers use different breeds to those managing multi-functional¹ demand.

¹ i.e. serving multiple goals and combining different activities at a farm (e.g. cheese making, nature development, human care and/or finishing calves).

Some of the results of this survey are:

- 29% of Dutch farmers **specialising in milk production** use pure-bred Holstein cows and 51% use crosses with more robust breeds, such as Brown Swiss, Montbéliarde and Maas-Rijn-Ijssel cattle (a dual-purpose breed).
- Fifty seven per cent of **multifunctional farms** choose crossbreeding whilst 30% choose native Dutch breeds, such as Maas-Rijn-Ijssel, Groninger White Face cattle and Dutch Friesians (FH). Only 2% of the multifunctional farms use Holsteins. Table 1 gives an overview of the main characteristics of a number of dual purpose dairy breeds.

Table 1 Characteristics of a number of dual purpose dairy breeds

<i>Breed</i>	<i>Characteristics</i>
Maas Rijn Yssel (MRI) ²	<p>The Maas Rijn Ijssel originates from the Netherlands. Females are about 135 cm in height and weigh 900 kg. Males stand 142 and average 1,250 kg in weight.</p> <p>The main characteristics are:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Milk with high protein content, <input type="checkbox"/> High yielding marbled meat carcass at slaughter. <input type="checkbox"/> Dual purpose <input type="checkbox"/> Stocky <input type="checkbox"/> Good milk from forage
Shorthorn ³	<p>The Shorthorn, up until the 1950s was the most abundant of all cattle in Britain. It originates from the North East coast of England (which, although fertile, can be a harsh environment). In Ireland, the majority of Shorthorns are used for their suckler/beef capabilities, whereas in the UK the milking qualities of the breed have been the main focus for development.</p> <p>The main characteristics are:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Dual-purpose breed. <input type="checkbox"/> Hardy, <input type="checkbox"/> Good ability to convert forage to milk and <input type="checkbox"/> Excellent conformation, <input type="checkbox"/> Leading to longevity <input type="checkbox"/> Their bull calves make excellent beef animals. <input type="checkbox"/> The breed is not a good protein converter and has a high butter fat content. <input type="checkbox"/> Good fertility <input type="checkbox"/> Ease of handling.
Montbéliarde	<p>Originally from the East of France. The Montbéliard is known for:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Their heavy body, <input type="checkbox"/> Good muscle cover, <input type="checkbox"/> Strong legs, <input type="checkbox"/> High milk production <input type="checkbox"/> And efficient roughage conversion⁴.
Red Poll ⁵	<p>The Red Poll is derived from the original cattle of Norfolk and Suffolk. It has a long tradition of native dual-purpose breeds. It is suggested that milking cows will give average yields of 5,000 litres with 4.2% butterfat and 3.5% protein.</p>

² <http://mrilivestock.co.nz>, Van Diepen et al., 2007

³ <http://www.shorthorn.co.uk>, SA: Karl Barton, 2005, Van Diepen et al, 2007

⁴ Nauta et al. 2001 biologisch fokken, een weg te gaan

⁵ source: <http://www.redpoll.org/>. The red poll is not very common in the UK as a dairy breed

According to former organic dairy farmer Nick Rebbeck, a number of UK organic producers use Jersey or Holstein Friesian dairy cows although other breeds might fit better in organic livestock systems. However, the marketing of male calves is an ongoing difficulty for both organic and conventional producers. (Van Diepen et al., 2007)

3.1.2 Production of meat from organic dairy steer calves

Organic steer production requires several decisions concerning grazing strategy, feeding level in the winter and such issues as slaughter weight and length of the fattening period. According to Nielsen et al. (2003), the production system can be difficult to optimise.

Problems associated with keeping calves can be:

- Lack of stall capacity,
- Expected poor production economy
- Shortage of on farm produced feed

In Denmark, an important reason for keeping bull calves on 29% of the farms is the wish for a holistic production system (Nielsen, 2003). Nielsen et al (2001) note that it is common to rear dairy breed bull calves in Denmark. They also note that calves are generally reared as bulls and slaughtered at about 11–12 months after indoor fattening with high concentrate feeding. This is impossible under organic standards as a result of the requirement of using minimum 60% of roughage in the daily feed ration.

A number of authors suggest that steers are better suited than bulls to the organic farm, due to their calm temperament, (Andersen and Ingvarsten, 1984; Nielsen et al., 2001). A survey in Denmark suggests that organic bull production was refused by the majority of farmers due to problems when having heifers nearby. According to some authorities, steers generally have a better eating quality than bulls, because of a higher fat marbling (Andersen and Ingvarsten, 1984; Steen and Kilpatrick, 1995).

The standards for organic animal husbandry state that a minimum of 60% of the daily intake of an organic ruminant should be roughage. Research has demonstrated that use of high quantities of roughage in steer diets does not negatively impact on meat quality. Beef from cattle fed high quantities of roughage or on pasture has a higher content of conjugated linoleic acid (CLA) (Scollan, 2003).

On organic farms, feed is often a restricted resource and potential beef production will have to compete with the dairy for feed resource. Marginal areas that are not used in the intensive dairy production might offer a solution. The use of nature reserves and forest open spaces that need conservation grazing also offer a potential source of summer pasturing.

A survey in Denmark (Nielsen et al., 2001) noted that few steers were finished on pasture in organic systems. Whole crop silage is preferred to grass silage in the finishing period. Work carried out in the UK, however, has demonstrated that cattle can be finished either from semi-natural rough grazings or improved grassland swards (Fraser et al, 2006). There are also suggestions (Flynn, 1985) that to finish steers, 300-360 kg of cereals or concentrates is adequate to ensure a good meat quality, while Griebenow et al. (1997) recommend finishing with cereals *ad libitum*.

Conformation is a visual assessment of the overall shape of the carcass and how well it is fleshed throughout. Carcasses are categorised into five main classes: E, U,

R, O and P. Conformation class E describes carcasses of outstanding shape, but these only represent a small proportion of the national kill. Class P describes poorly muscled carcasses of inferior shape and again only a small proportion of the national kill falls into this class.

Table 2 EC carcass classification

<i>EC Grade</i>	<i>Description</i>
E	Excellent; carcasses of outstanding shape
U	Very good
R	Good
O	Fair
P	Poor; poorly muscled carcasses of inferior shape Usually produced by extreme dairy breed and cows (www.mlcclassification.co.uk)

Source: <http://www.redmeatindustryforum.org.uk/supplychain/CarcaseClassification.htm>

Fat class is determined by a visual appraisal of external fat development. There are five main classes ranging from 1 (very lean) to 5 (very fat).

In Australia, sheep producers are paid on “saleable meat” per sheep. Abattoirs are not concerned with confirmation, but they do take fat into account. This classification would favour dual-purpose breed cows over Holstein Friesian breeds as they produce more saleable meat per cow. According to ADAS Livestock Research Scientist Barbara McLean, this classification might be introduced in the future in Europe to replace the EUROP-classification (McLean, 2007, pers communication).

Oldenbroek (1982) suggests that the slaughter quality of the Holstein is inferior to that of the Dutch Friesian, and particularly to the Red and White (MRI) breed. Also Hirooka et al, (1998) suggested that estimated additive breed differences for MRI relative to the Dutch black and white cows were positive for Conformation, Carcass weight and Fat Covering Score, indicating that the dual-purpose and beef breed are superior to the dairy breed.

Other researchers, such as IGER, Lively (et al., 2005) suggest that meat quality is not influenced by breed but mainly depends on:

- Daily gain in the finishing period and live weight at slaughter (Steen and Kilpatrick, 1995). This information is required when selling finished animals to processor/ abattoir (Morse, 2007 pers. communication)
- Pasture type
- Feed strategy; forage based production results in higher quality
- Method and time of hanging (Lively et al., 2005)

Lively *et al.* (2005) suggest that dairy genotypes produce more tender meat than beef genotypes. They say that relationships between carcass parameters and measures of meat quality depend on the method of hanging.

Van Veldhuizen et al. (1991) conducted research on the implications of selection of beef for a dual-purpose breeding program. They found that for a dual-purpose breeding program, the returns from selection on milk and beef production are 15% higher than the returns from selection on milk production only. They stress that this higher production does not automatically result in higher profits. It does result in a higher profit if the dairy producer finishes his own calves. Conclusions of this

research must be interpreted carefully as the research does not specifically focus on organic farming systems. Furthermore, this might be different in the UK.

3.1.3 Economics of organic dairy farming systems

3.1.3.1 Economics of milk production

According to Lampkin et al. (2007) profitability of organic dairy farms is significantly influenced by the organic milk price. Table 3 shows the gross margin for two different organic dairy farming systems; one using Friesian/ Holstein cows and one using MRI cows

Table 3 UK organic dairy gross margin

	<i>Friesian Holstein (Organic Farm Management handbook 2007)</i>	<i>MRI (Case study)</i>
Milk sales	1566	1485⁶
Female calves	18	18
Male calves	11	18 ⁷
Cull cows	47	47
Replacement heifers	-150 ⁸	-75 (if replacement is 10%) ⁹
Total output	1491	1485
Variable costs	467	467¹⁰
Forage	64	64
Total costs	531	531

The table suggests that the outputs of an organic dairy farming system using MRI dual purpose breed cows is similar to a system using dairy breed cows and could be higher if the price received for the calves is high.

3.1.3.2 Economics of meat production

Steven Feehan of Anglo Beef Processors, says that the price for a number of different conformations of organic meat is as follows:

- 50p/kg price reduction is applied for carcasses with a conformation of “O-“
- 150p/kg price reduction is applied for carcasses with a conformation of “P”

RMIF reports in its recently published report on the UK organic beef market on the gross and net margin of organic beef production. Table 4 shows these margins. It must be noted that the information is based on a conformation of “O+4L”

Additionally they note that the break-even price for finishing bought-in organic beef x dairy steers is £3.18/kg dead weight. This confirms what two of the finishers interviewed mentioned. The profit of finishing organic steer calves depends on the

⁶ this is based on a lower milk production of 5,500 instead of 5,800 litres

⁷ the results from the interviews suggest that the price paid for an dual purpose calf is higher than the price paid for an dairyXbeef breed calf

⁸ this is based on a replacement rate of 20%

⁹ replacement % is lower for dual purpose breeds as the longevity is higher. Dual purpose breed cows have a longer lactation period than Holstein Friesian cows; they can produce milk for 7-10 years.

¹⁰ The variable cost are assumed to be similar. However, the case study interview showed that fewer concentrate was needed.

price paid for the steer calves. The Red Meat Industry Forum also stress that the profitability depends greatly on the levels of fixed cost.

A few suggestions raised for reducing cost of production are securing alternative sources of whole milk, such as multiple suckling of some dairy cows. This system is used by one of the finishers interviewed (see Appendix 6)

Table 4 Gross and net margins of finishing organic suckler steers and heifers, beef X dairy steers and dual purpose breeds

	Finishing organic suckler steers and heifers		Finishing organic beef X dairy steers: Average RMIF		Finishing organic dual purpose breeds (steers only)
	<i>Homebred</i>	<i>Bought reared</i>	<i>Homebred</i>	<i>Bought reared</i>	<i>Bought reared</i>
Age at slaughter (months)	25	25	25	25	30
Finished live weight	598	598	529	529	
Average carcass weight (kg)	323	323	286	286	300-370
Finished price (O+4L)	280	280	260	260	260 ¹¹
Output (£ per head)	904	904	743	743	910
Variable cost (£/head)	368	353	444	332	332
Calf cost (£/head)	0	308	0	160	180
Gross margin (£/head)	538	234	299	251	398
Fixed costs (62p/day)	472	342	472	416	558
Total costs (£/head)	840	1003	915	908	890
Net margin (£/head)	63.74	-99.06	-172.63	-165.15	-18.05

Source: RMIF (2006); Morse (2007) Pers. communication

3.1.4 Marketing meat and milk

There are a number of initiatives to improve marketing of meat coming from organic dairy calves

a) Veal from Eastbrook farm

In a market initiative, the SA, Eastbrook farm, Bordeaux Quay and OMSCo have joined together to develop the market for organic veal production in the UK. Although a typical male Holstein-Friesian organic dairy calf will not grow into an ideal beef animal, with good farming management it can produce good eating quality meat at a younger age. The calves are not slaughtered less than six months of age (Soil Association, 2006)

b) Organic dual-purpose breed calves

There are some dairy producers who use dual-purpose breeds. The two interviewed in-depth for this report have set up a direct link with an organic finisher and receive a good price for their calves. See Section 3.2 and appendices for more information about these initiatives.

¹¹ Note that prices have increased with 50p/kg since 2006 so prices average now between 290 and 310

3.2 Interviews

3.2.1 Interviews with dairy producers

Twenty-four organic dairy producers were interviewed. Table 5 gives an overview of the breeds used. The total number of farmers is higher than 24 as some producers use several breeds on their farm

Table 5. Breeds used by organic dairy producers in Wales and UK:

<i>Main breed used</i>	<i>No. of farmers</i>
British Friesian	7
Holstein Friesian	4
Friesian	2
Maas Rijn Ijssel (MRI)	2
Shorthorn	2
Montbeliard	1
Holstein	1
Ayrshire	1
Jersey	1

3.2.1.1 Breeding goals

The most important traits for an organic dairy cow were felt to be the following:

- Good feet and legs
- Milk yield
- Good forage conversion
- Longevity AND meat quantity and quality of steer calves
- Udder
- Temperament
- Hardiness
- Easy calving

3.2.1.2 Key challenges in organic dairy sector

The main challenges were felt to be, in order of importance:

- Milk price and
- Forage production followed by
- Optimising milk from forage.

3.2.1.3 Use of Dual purpose breeds

Four of the 24 interviewees are at present using dual-purpose breeds. Two of these four were approached directly, knowing that there were using dual-purpose breeds. The other two were selected during the survey process.

A number of producers have used dual-purpose breeds in the past but subsequently stopped using them. The main reasons for reverting back to a dairy breed were:

- Low milk yield
- Bad temperament and
- Difficult to get into calf.

Three producers interviewed commented that the Shorthorn is not a dual-purpose breed anymore. It has already been bred for either dairy or beef.

3.2.1.4 *Future/best practice of organic dairy steer calves*

The survey suggests that¹²:

- Eight percent of all dairy bull calves born on organic dairy farms are slaughtered at birth
- 51% of farmers sell bull calves into the conventional supply chain; (25% directly to organic finishers, 26% into the conventional market)
- 39% of farmers sell bull or store calves to organic finishers,
- 21% of farmers finish all or some of the bull calves on the farm of birth.¹³

A large number of the farmers selling their bull calves, wished to keep the bull calves on their own farm but are limited by the farm resources.

The main barriers mentioned by the organic dairy producers finishing calves on farm were:

- Lack of land to grow feed,
- Very costly to feed the calves with organic milk for 12 weeks as they can only be weaned after 12 weeks.
- No organic milk powder available

Furthermore the following reasons were also mentioned:

- Low price for organic beef,
- No demand for veal,
- No demand for organic dairy steer calves,
- Breed of steer calves does not fatten.

3.2.1.5 *Economics of finishing organic dairy steer calves*

Three interviewees mentioned that it is difficult to sell Friesian bull calves to finishers.

The price obtained for organic dairy steer calves by organic dairy producers ranges from £50 to £200 (the highest price received was for a MRI breed).

3.2.2 Interviews with organic finishers

All finishers interviewed buy calves/ stores directly from organic producers.

3.2.2.1 *Breeds finished*

The organic fatteners interviewed are finishing the following breeds:

- Maas Rijn Ijssel (MRI)
- Shorthorn
- Friesian X
- British Friesian
- Holstein X Limousine
- Holstein Friesian (for veal)

¹² The total is higher than 100% as some farmers finish part of their calves on farm and sell the rest to conventional or organic finishers

¹³ Three farmers finishing calves on farm, sell the meat via an organic co-operative and the rest sell them to/ via an abattoir to a multiple retailer.

80% of the interviewees mention that they would never consider finishing pure Friesian or Holstein breeds.

3.2.2.2 Quality/class of meat

The conformation of finished organic dairy animals varies between “P”, “O” and “R”. The majority of animals finish as a “O+”. The “R” is for a MRI breed and the “P” is for a Friesian cross. According to all interviewees it is difficult to sell finished Friesians.

3.2.2.3 Economics of finishing

Prices paid for calves and stores vary between £100 and £200 and £50 for the heifers. The current price of organic beef is now on average £2.50-3.10/kg for “O” classed animals. As a result of the wide variation (270-380 kg) in dead weight the total output price for the finished animals also varies considerably.

According to Morse (pers. Comm) the price received for organic finished animals has increased by 50p/kg between 2006 and 2007.

The main costs of production were suggested to be:

- Winter keep (feed)
- Finishing costs (feed)

3.2.2.4 Key challenges

The main challenges mentioned by the finishers interviewed, in order of importance, are:

- 100% organic feed from the end of 2007 onwards
- Selection of good bull
- Price paid for calves/ stores
- Wintering (mainly costs involved if not wintered outdoors)
- Obtaining organic steer calves

3.2.2.5 Future of organic dairy calves

Crossing with beef breed bulls is important in order to obtain a good quality carcass.

Use of dual-purpose breeds is important,

According to one interviewee, “It is difficult to buy organic steer calves via the livestock market, I buy directly from organic producers”

There was some concern about a possible change in the organic beef situation. Two finishers expressed the view that, “if the organic beef market gets oversupplied dairy crosses could become difficult to sell”

Furthermore another interviewee commented, “we need to educate organic dairy producers to use more British Friesian or dual purpose breeds as they are best to finish”. He added, “costs involved with producing a weaned calf need to give a good return”.

3.2.3 Interview with Agro- Eco, the Netherlands

See, in Box 1, a brief overview of the ‘ Stierkalf waardig’ project in the Netherlands and the opinion of Kees van Veluwe of Agro eco about the future of organic dairy steer calves. This illustrates how the interest in finishing organic dairy steers depends very much on the price of organic beef.

Box 1 Organic dairy steer calf project in the Netherlands

“The local government commissioned Agro eco to undertake an investigative study titled, ‘finishing organic dairy steer calves within the organic supply chain’ three years ago. The objectives were to:

- draw up an inventory of possibilities and bottlenecks for fattening of organic steer calves,
- investigate marketing of organic veal through a pilot project,
- make an inventory of potential national and regional markets,
- design a business plan and
- Widely disseminate results.”

“After 1.5 years of the project it was decided to stop. The project was stopped as the price of organic meat had reduced and it was thought impossible to make finishing organic dairy steer calves economically viable.“

In 2007, with an increased price of organic beef the project has re-started.”

4 Conclusions

4.1 *Current situation of the meat from the organic dairy sector*

The main breed used by the organic dairy producers interviewed is the British Friesian.

A number of dairy producers interviewed said that they were returning from using Holstein cows to using British Friesian cows.

There are still a high number of organic dairy calves that are killed at birth and 51% of the calves go to the conventional supply chain.

The majority of farmers interviewed said that the high milk price made them focus merely on milk production. Rearing calves for 12 weeks on organic milk which they could otherwise sell made weaned calves/ stores very expensive.

Lack of organic milk powder is an issue mentioned on a number of occasions.

There are a number of organic dairy producers who finish their own dairy calves or sell them to an organic finisher. There are a number of challenges involved in finishing calves on a dairy farm. Lacking infrastructure/ buildings and shortage of land are the main ones.

Only 4 of the organic dairy producers interviewed use a dual-purpose breed within their system. Two producers interviewed mention that they are starting to crossbreed with MRI or Shorthorn, as the meat from steer calves is becoming more and more important. Two producers mention that there are no 'real' dual-purpose breeds anymore.

Table 3 showed that by using dual purpose breeds in an organic dairy farming system there was a small reduction of the litres milk produced but also a reduction in total costs (by reducing replacement costs). The profitability of an organic dairy system using dual-purpose breeds can be similar or slightly higher. Furthermore, if dual-purpose calves can be sold at a higher price, gross and net margins are better for systems using dual-purpose breeds than for those using dairy breeds.

Some dairy producers suggest that British Friesian is also a dual-purpose breed. Organic finishers interviewed do not perceive that the British Friesian is dual-purpose but do confirm that the breed finishes reasonably well.

4.2 *Opportunities for improving the marketing of organic dairy steer calves*

There is a wide range of breeds used within the organic dairy sector. Nauta et al (2001) suggested that this is related to the market the producer supplies. There are producers who process the milk on farm into butter, ice cream, etc. This production requires breeds with a high butterfat content such as, for example, Ayrshires. Furthermore, there are producers supplying milk for cheese production. This again requires different breeds.

Some breeds are easier to finish than others. Holstein Friesians but also Ayrshires were said to not finish well, although Eastbrook Farm has managed to produce veal from Holstein-Friesian steers.

Recent market research indicates that there is under supply in the organic beef market. The further development of beef production from the organic dairy herd is

one of the opportunities suggested in the organic beef report from the Red Meat Industry Forum.

Currently, there are many organic animals that go into the non-organic market, particularly in the form of calves from the national organic dairy herd and according to Phil Stocker of the Soil Association also from suckled store cattle.

With the organic milk price high, there is resistance from many existing organic dairy farmers to finish dairy cattle. Table 3 shows that the gross and net margin of dairy farming systems using dual purpose breeds is similar to those using dairy breeds. Furthermore, it shows that gross margins for finishing organic beef X dairy steers are more profitable when using dual purpose breeds. This suggests that there are new opportunities which are not yet 100% explored.

Key issues mentioned by organic dairy producers relating to finishing organic steers are lack of infrastructure/ housing and lack of land to produce home-grown feed.

According to Phil Stocker, organic producers will not be prepared to invest in steer production without assurances that the market will take the animals at a price that covers the costs of production.

The experience of the Dutch project described in this report also suggests that price for the end product needs to be attractive or at least cover the costs.

The case studies of the dual-purpose breeds and Tables 3 and 4 suggest that there is money to be made from using MRI and Shorthorns. However, more detailed research including drawing up a farm business plan would be advisable.

Finally, there is little knowledge amongst organic dairy producers interviewed about the market and price for organic meat from the organic dairy sector. Awareness needs to be raised about the market situation. Furthermore, communication between the organic dairy and the organic beef sector needs to be improved. The UK market report for organic beef from the Red Meat Industry Forum and the conference organised by the Soil Association have made a start by raising the possibility of organic dairy steer calves as a resource for organic beef production.

5 Recommendations

1. More research is needed on the economics of finishing dual-purpose steer calves.
2. Information about systems using dual-purpose breeds should be widely spread.
3. Finishing organic dairy steer calves should not be seen as a temporary solution to producing/ finishing organic beef. There is a need to develop a permanent solution/market.
4. Awareness needs to be raised amongst organic dairy producers about opportunities for finishing organic dairy animals, as there is little knowledge amongst the organic dairy producers interviewed about the market and price for organic meat from the organic dairy sector.

6 References

- Andersen, H.R., Ingvarsten, K.L., 1984. The influence of energy level, weight at slaughter and castration on growth and feed efficiency in cattle. *Livest. Prod. Sci.* 11, 559–569.
- Cunningham. 1974. *The economic consequences of beef crossing in dual purpose or dairy cattle populations.* *Livestock Production Science* 1 (1974) 133--139.
- DEFRA. 2002. *UK Country Report.*
- Flynn, V., 1985. Beef production from Friesians calves. *Veterinary Update*:34–36.
- Fraser, M.D., Davies, D.A., Vale, J.E., Nute, G.R., Hallett, K.G., Richardson, R.I. and Wright, I.A. 2006. *Performance and meat quality of native and continental cross steers grazing ryegrass/white clover improved pasture or semi-natural rough grazing* (submitted).
- Hirooka, H. Groen, A.F., Julius H.J., Van der Werf 1998. *Estimation of additive and non additive genetic parameter for carcass traits on bulls in dairy, dual purpose and beef cattle breeds.* *Livestock Production Science* 54 (1998) 99-105
- Lively, F.O., Keady, T.W.J., Moss, B.W., Farmer, L.J., Gault, N.F.S., Tolland, E., Patterson, D.C.P. and Gordon A.G. 2006. *The effect of genotype, pelvic hanging technique and aging on the eating quality of some hindquarter muscles.* *Proceedings of BSAS*: 20
- Nauta, W.J, Baars, T. Groen, A.F., Veerkamp, R.F. and D. Roep. 2001 *biologisch fokken, een weg te gaan.* Louis Bolk Institute
- Nauta, W.J., Saatkamp, H., Baars, T. and Roep, D. 2006. *Breeding in organic farming: different strategies, different demands.* Paper presented at Joint Organic Congress, Odense, Denmark, May 30-31, 2006.
- Nicholas, P. 2007 University of Wales, Aberystwth, pers. comm.,
- Nielsen, B and S.M. Thamsborg November 2001 *Dairy bull calves as a resource for organic beef production: a farm survey in Denmark*
- Nielsen, B. Kristensen, T and ³ S. Milan Thamsborg 2003 *Organic steer production based on dairy breed bull calves – a farm study in Denmark*
- Oldenbroek, J.K., 1982. *Meat production of Holstein Friesians in comparison to Dutch Friesians and Dutch Red and White.* In: G.J. More O'Ferrall (Editor), *Beef Production from Different Dairy Breeds and Dairy Breed Crosses.* Martinus Nijhoff, The Hague, pp. 45--52.
- Red Meat Industry Forum (RMIF). 2006. *The UK market for organic beef*
- Scollan, N. 2003 *Strategies for Optimising the Fatty Acid Composition of Beef.* IGER Innovations
- Soil Association, 2006, *organic farming winter 2006. Veal good.*
- Steen, R.W.J., Kilpatrick, D.J., 1995. *Effects of plane of nutrition and slaughter weight on the carcass composition of serially slaughtered bulls, steers and heifers of three breed crosses.* *Livest. Prod. Sci.* 43, 205–213.
- Van Diepen, P. Frost, D and B. McLean. 2007. *Livestock breeds and organic farming systems.*
- Van Veldhuizen, A.E., Bekman, H., Oldenbroek, J.K., Van der Werf, J.H.J., Koorn, D.S. and Muller, J.S., 1991. *Genetic parameters for beef and milk production in Dutch Red and White dual-purpose cattle and their implications for a breeding program.* *Livest. Prod. Sci.*, 29:17-30.