
FORWARD SUPPLY CONTRACTS FOR THE WA SHEEP MEAT SECTOR

DEPARTMENT OF PRIMARY INDUSTRIES AND REGIONAL
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EXECUTIVE SUMMARY

The most critical component to increasing the investment attractiveness of the WA sheep industry is for the market place to have effective forward supply chain arrangements and contracts that are available for current and future supply chain participants.

Stretch (2015).

BACKGROUND TO THE STUDY

The Western Australian (WA) sheep industry has been in general decline in terms of sheep numbers and contribution to the state's economy since the early 1990's. This has been due largely to the cessation of the reserve price scheme for the wool produced by sheep, new technologies and innovation related to dryland cropping that has become the dominant enterprise in the WA agricultural sector and decline in availability of semi-skilled labor for the sheep industry. The sheep industry is also structured on spot, short term marketing at both ends of the physical supply chain, making supply and associated pricing relatively volatile and unpredictable. There is currently a lack of market mechanisms applicable to WA to support reducing this production and price volatility and risk for participants within the physical supply chain (i.e. producers and processors).

There is also a general view that WA lacks critical scale in terms of sheep supply and the supporting supply chain infrastructure (mainly production based) to meet forecast international consumer demand for sheep and lamb meat products. A key aspect of this lack of critical scale and supply chain investment is the absence of market based risk management and contracting framework, that could facilitate greater coordination, integration and longer-term decision making and investments to be made within the WA sheep supply chain.

The WA sheep market functions primarily on spot, short term marketing at both ends of the physical supply chain (production to processor/live export), making supply and associated pricing relatively volatile and unpredictable with an absence of future price discovery beyond typically one to two months. In the majority of cases the sheep supply chain operates whereby, the producer takes on production risk, the processor or live exporter takes on receiving adequate supply and price risk and the wholesale, retail and importers take on price risk to meet customer specifications.

Analysis by the Department of Primary Industries and Regional Development (DPIRD), as well as surveys by the Australian Bureau of Agricultural and Resources Economics (ABARES) and Meat and Livestock Australia (MLA)/ Australian Wool Innovation (AWI) show the WA sheep population remains in decline despite ongoing positive market demand signals.

There is currently a lack of market mechanisms for example, forward contracts between 2 to 6 months for out of season supply of lamb, operating derivative products, fixed price off-take agreements in Western Australia sheep industry to support more stable and consistent price and production conditions. These mechanisms would reduce risk for participants within the supply chain (i.e. producers and processors). There is an urgent and pressing need to investigate the viability and structure required to establish forward supply contracts for WA sheep to make clearer and longer-term decision making and support growth in the sector.

PURPOSE OF THE STUDY

The need has been identified to research and evaluate forward contracts in agricultural sectors and investigate the viability and structure required for industry leadership bodies and supply chain participants to establish forward supply contracts for the Western Australia sheep industry to make clearer and longer-term decision making and support future sheep flock and value growth in the sector.

This study aims to identify and review of the current challenges facing the sheep meat sector in Western Australia and existing forward supply contracts for other agriculture commodities and develop an appropriate draft forward contract template for commercial forward supply contracts in the Western Australia sheep meat sector.

APPROACH

AEC has undertaken the following four phases in delivery of the study.

Table ES.1. Study Approach

Phase	Description
Phase 1: Background Research	<ul style="list-style-type: none"> Identify key challenges facing the Western Australia sheep meat sector via: <ul style="list-style-type: none"> Detailed literature review. Key industry stakeholder engagement. Workshop(s) with DPIRD staff.
Phase 2: Existing Forward Contract Review	<ul style="list-style-type: none"> Identify and review relevant and comparable forward supply contracts that are in operation in other agricultural commodities including meat, to understand what has worked well, what has not worked and what needs to change. Includes key stakeholder engagement with industries currently participating in forward supply contracts.
Phase 3: Preliminary Forward Supply Contract	<ul style="list-style-type: none"> Develop an industry best practice forward supply contract template, based on the learnings and experiences from other sectors that is suitable for use in the adoption in the Western Australia Sheep meat sector. Includes preliminary legal review.
Phase 4: Industry Engagement & Extension	<ul style="list-style-type: none"> Engage with and test the preliminary forward supply contract template with key industry representatives. Incorporate feedback as appropriate into draft forward supply contract template.

COMMODITY MARKETING ARRANGEMENTS

In Australia, the majority of sheep market sale transactions are made on a spot market basis either at livestock saleyards or on farm negotiations between producer and purchaser. Some forward contracts between 1 to 4 months are used by processors to fill difficult supply periods during the year, while forward contracts between 1-6 months are used to supply some specific live export markets (For example, long tail ram lambs for live export have been contracted forward previously). The use of forward supply agreements is currently used between retailers (domestic), processors and select producers to ensure the supply of sheep for specific domestic retail and food service markets. The presence and availability of open saleyard market auctions is a distinguishing feature of the sheep and cattle sectors in Australia/WA for the purpose of price discovery, transparency and market reference indicators. Open saleyard auctions do not play as significant role in other agricultural commodity sectors in Australia that operate with forward supply contracts, namely pigs, dairy, horticulture, grains. Saleyards do create and promote spot market transactions for price discovery and marketing comparison purposes.

A summary comparison of marketing arrangements commonly used for different commodities is presented in the table below. The transaction processes in the Australian (and Western Australia) sheep industry are not dissimilar to many other agricultural commodities, with a mixture of primarily spot market with some short to medium term contracts. However, the sheep industry's use of short to medium term forward contracts is relatively minimal.

Table ES.2: Marketing Arrangements by Different Commodity Agricultural Sectors

Industry	Spot Market	<12 months	1 to 5+ year	Operational Derivatives ^(a)
Australian Sheep				
New Zealand Sheep				
Australian Beef				
Australian Pigs				
Australian Dairy				
Australian Grain (Wheat)				
Australian Hort (product specific)				
USA Red Meat				

Notes: (a) Markets including OTC & Exchange
Source: Various (See Appendix C)

FORWARD CONTRACT CHALLENGES IN THE SHEEP INDUSTRY

There are a number of risks and challenges to creating and sustaining longer term forward contracts beyond six months. This is evident from the New Zealand Silere' lamb example whereby forward supply contracts with fixed price minimums were reduced from three years to less than six months due to the processor bearing the price risk and significant price deviation in the physical spot markets. In addition, some of these challenges relate to the geographic isolation of Western Australia, with a relatively small domestic consumer population base (less than 3 million). This makes Western Australia heavily export dependent and exposed to variations in currency, trade and market access, and international logistical supply chains. The case studies examined demonstrate that forward contracts in the domestic market are far more common due to lower risks and complexities in delivering product to end customer as compared to export markets.

Implementation of forward contracts is further hampered by supply chain fragmentation; the industry lacks concentration and intensive specialists with over 4,500 producers with sheep flocks. By comparison, the WA pig industry has a single major processing facility and over 80% of production is controlled by 12 pig producers. The ability to forward integrate downstream is made easier with large scale producers in the pig industry who can manage and influence production standards, genetics, animal welfare standards, carcass specifications and timing of turn-off.

A number of key challenges are also present from a processor and end buyer perspective. The potential barriers that would need to be addressed around the implementation of (medium term 6 to 12 months) forward supply arrangements and contracts include:

- Securing consistent and certain contracts with customers, retail and/or wholesale to enter into medium term (>6 months) forward supply contracts with producers.
- Buyer and seller behaviour, whereby spot cash markets fall below the forward contract price at time of physical delivery meaning forward contracts 'were out of the money'.
- The lack of an active, liquid derivatives market for contracting parties.
- Lack of forward price discovery references and ability to market a range of prime, co and by sheep products to multiple domestic and export markets.
- Changing procurement models that currently operate in the Western Australia sheep industry.
- Guaranteeing the physical delivery quantity and quality of sheep and lambs by contracted producers suppliers.
- Cooperative processor may need to offer all members equal marketing options under a one vote one value cooperative principle.

The challenges that need to be addressed to successfully develop and implement a functional and effective medium term (6 to 12 months) forward contracting supply system for the Western Australia sheep industry have been sufficiently overcome in other agricultural commodity sectors operating with and without derivative markets, including meat, both domestically and internationally. Specific examples include the Australian pig and dairy industry and the growing use of short term (<6 months) physical forward contract arrangements in the beef and lamb industries in Eastern Australia. In New Zealand, forward supply arrangements and contracts have been adopted for lamb in both domestic and export markets based on supply chain cooperation and coordination, but the contract length has been reduced in recent years.

There are a number of advantages and disadvantages of forward contract arrangements that have been identified through literature review, commodity case studies and industry consultation, with potential to impact on either the seller and buyer. Key advantages and disadvantages are examined below.

Table ES.3: Key Advantages and Disadvantages of Forward Arrangements

Key Advantages	Key Disadvantages
<ul style="list-style-type: none"> • Managing risks • Removes uncertainty, building market security and confidence • Reduces volatility for entire supply chain • Income stability, providing improved budgeting and financial management • Enables infrastructure investment planning • Enhances productivity and efficiency value through delivery to specifications • Facilitates coordination among stages of production, and build value chain relationships between producer and downstream processor (aids information and data flows) • Increase supply chain infrastructure utilisation • Increase confidence to grow sheep supply and assure adequate supply • Improved quality control • Potential alternative sources of finance and improved access to capital through income stability • Reduced transaction and financial costs • Intellectual property protection 	<ul style="list-style-type: none"> • Reduced market flexibility • Price risk assumed by processor • Production risk for producer • Spot market price deviates from forward contract price • Purchaser obtaining back to back commitments • Potential market concentration • Risk of reduced competition in spot markets – The greater use and adoption of forward contracts reduces the participation of buyers in spot markets. (However, this is potentially offset by reduced supply in spot markets.) • Loss of price information – due to increased use of contracting may reduce availability of publicly available pricing transparency. • Risk of not being paid

Source: Various sources (see Appendix C) and Industry Engagement

The intention should not be for the Western Australia sheep industry to become dominated by forward supply arrangements and contracts as a means of selling all sheep and lamb. There will always be a place for spot markets due to the large number of producers (4,500), extensive means of production across vast distances in Western Australia that is subject to significant annual climatic variability and the dynamic shifts that occur year by year in land use allocation by producers and their consultant's due to global grain market conditions. However, the opportunity for greater supply chain integration through an effective forward supply arrangement and contracting system can provide benefits to all participants along the supply chain. To successfully achieve this a proactive, positive and creative approach to addressing the core challenges, constraints and barriers is required along with long run collaborative industry leadership and willing participants.

KEY CASE STUDY SUMMARY AND LEARNINGS

The following key learnings are identified following the detailed case study reviews, including discussions with relevant case study sector representatives. The key learnings and experiences of what has worked well, essentially highlight the elements that that will contribute to an effective and sustainable forward contracting system in agricultural commodities relevant and applicable to the Western Australia sheep industry, and include:

- Supply Chain Integration:
 - Longer dated forward contracts >3 months need to have retail, wholesale, importer pricing support otherwise processors and live exporters bear greatest price risk and potential for loss.
 - Direct producer to processor-market relationships underpinned by domestic retail customers are common and these facilitate longer term forward contracts with the end producer.
 - Forward contracts in Australia agricultural sector predominantly require domestic retail supermarket and or food service companies as end customer to underpin the forward contract. Export customers are much less likely to forward contract due to additional supply chain risks and complexities along the supply chain (i.e. currency fluctuations, international logistics, competition from other global products and geographic distance impeding close regular relationship maintenance).

- No agents or middlemen involved in direct forward contracts.
- Production and Quality Requirements:
 - Producers must meet high quality specification standards.
 - Producers required to have strong farm quality assurance and food safety standards.
- Formula Pricing and Payment:
 - Contracts that reward producer commitment and contain risk/ reward clauses so both parties are protected by spot market moves at time of physical supply are beneficial and typically based on formula pricing. However, the reference indicators for the formula need to be reliable, transparent and accurately reflect the class of livestock being sold in the physical transaction.
 - The use of price retrospective price step-down clauses as used in the Australian dairy industry example should be avoided.
 - Consistent and unambiguous classification and description of product is critical for price transparency and formula based pricing. Inconsistent descriptions may result in comparing 'apples with oranges'.
 - Long term contracts beyond 12 months are possible with no operating local derivatives market based on minimum and formula based pricing mechanisms.
 - The use of derivative products where available and practical to manage price risk and volatility should be considered.
 - Adopt conservative approach to forward prices through minimum and formula based pricing.
 - Do not include retrospective price step-downs or price repayment clauses in forward contracts.
 - Payment structures based on minimum and formula basis to provide the option to the producer for the highest possible price to be paid at time of physical supply.
- Behaviour, Resolution and Information:
 - Strong peak industry leadership that supports and facilitates forward contracts is beneficial to all
 - Producers collaborating to partner and supply with major domestic retailer can create forward contract system as price risk is more balanced towards the end of the supply chain that has greatest capacity to manage and influence price.
 - Industry Code of Practice for forward contractual arrangements can be beneficial for all parties.
 - Independent and Objective Dispute Resolution services for forward contracts can be beneficial for all parties.
 - Focus to be on improving relationships and information exchange between farmers, processors and live exporters.
 - Focus on domestic physical value chain alignment and high value export destinations for forward contracts.
- Targeted Requirements and Outcomes:
 - Longer term forward price provides certainty for financial, production and supply management.
 - Contracts need to be simple, transparent, fair and easily understood by both parties.
 - Collective bargaining by producers can be positive, but success is not guaranteed.

A CHALLENGING BUT ENCOURAGING CASE FOR CHANGE

With any new product or industry move there are those in favour and those that oppose. Sometimes significant change comes off the back of significant hardship, which draws unity. Following are a summary of the key factors raised by those in favour of delivering forward contracts and those against:

Forward contracts should and will be implemented as:

- The industry is restructuring (slowly) with grower groups and alliances:
 - Promoting best practice leadership in value chains
 - Integrate and forward negotiate with downstream processors/retailers
- There is a range of new market information and trading platforms that could be adopted for the WA sheep industry (e.g. Clear Grain, AgriDigital, SproutX)
- There is a trend of increased utilisation of online selling platforms (e.g. AuctionsPlus)
- There is increased interest, foreign demand for animal based protein products and supply chain investment from overseas (e.g. the Middle East, China).

Arguments why they (forward contracts) will not be pursued at the current time include:

- The industry is not united as a whole, and currently lacks a clear and united industry vision and cohesive leadership.
- The sheep industry is complex and highly fragmented and there is not deep industry specialisation and intensification in WA as compared to industries such as pigs and dairy. Sheep is not a single product but a series of multiple products requiring significant processing to transform into, prime (rack), co (offal) and by-products (blood, bone) products and does not constitute a single standardised product that can be more readily forward contracted.
- There is a level of apathy within the sheep industry due to strong current market as there are:
 - Record high sheep and wool prices
 - Strong future demand forecast for Australian sheep meat
 - Positive AUD currency forecast between 70 and 80 cents
 - Declining competition with the New Zealand sheep flock declining NZ (less than 27million head).
- The current market structure, which has a dominance of agents and promotion of open saleyards.
- There is no current or forecast significant shock to catalyse a change in behaviour or attitude (e.g. grain had deregulation in 2000's which created new marketing options and the requirement for farmers to become responsible with their specialist advisers to market their grain).

Why Contracts Will Grow in Use?

Key reasons forward contracts are likely to grow in use include:

- Demand for differentiated agricultural products to meet specific consumer preferences will continue to grow, and such products are generally produced under contract.
- Pressures will mount to ensure traceability of products for environmental, sustainability, health and consumer concerns, and contracts provide one way to ensure this traceability.
- Pressure to reduce environmental degradation associated with agricultural production will likely result in upgraded production technologies and require tighter management of production systems through contracting.
- Large scale, professional and specialised producers will forward integrate with downstream market participants to reduce volatility, bypass middlemen (agents and wholesale) and create market certainty for out of season supply of lamb and sheep.

- Finally, large farms account for sharply growing shares of agricultural output. Contracting is closely associated with farm size, and contract use can be expected to grow along with the increase of large farms.

RECOMMENDATIONS

Implementation Activities for this project

- Deliberate and clear ongoing industry engagement, including:
 - Supporting specific 'physical supply chain' projects with sheep production groups/ major producers to develop aggregated supply to engage with downstream processing, live export, retailer companies to implement forward supply agreements (>3 months) for out of season sheep during the months November to July.
 - To engage and assist willing processors/exporters to assist them to develop and implement forward contracts based on the best practice learnings and template that addresses the major challenges identified herein.
- Support the development and implementation of trial 'AuctionsPlus' forward contract sales for slaughter lamb delivery out to 6 months with forward contract template information and best practice learnings obtained through this study.
 - Support and facilitation of existing and new grower alliance groups
 - Support and facilitation of industry innovation day(s)
- Support the development of new technology and market information and trading platforms for the sheep industry (e.g. similar to Clear Grain, Agridigital, SproutX and StockX-New Zealand).
- Facilitate and support the development and promotion of alternative longer-term sheep breeder finance products by banks and financial providers.
- Consider completing a study into sheep processing benefit utilisation, productivity and quality standards based on the theoretical increased use and adoption of forward contracts including different market volume and timing scenarios.

WA Sheep Industry Leadership Bodies

- Advocate and promote:
 - For Australia/Western Australia to obtain a dedicated United Kingdom (UK) lamb quota following the exit of the UK from the European Union (EU).
 - Value chain alignment, producer to consumer
 - The adoption of physical forward contract agreements >3 months.
 - With the banking and financial services sector for the creation of livestock breeder finance products.
 - Nationally for the training and education of OTC Riemann derivative products.
 - The development of additional specific live export market information prices per category (MLA and LiveCorp).
 - The development of trading platforms in the WA sheep industry (e.g. similar to grain industry Clear Grain)
- Develop an alliance with an independent dispute resolution and arbitration service for forward contracts (For example. Grain Trade Australia, Australia Disputes Centre).
- Develop an alliance with an Australian agricultural industry body that has successfully developed a framework for implementing and maintaining a comprehensive contracting system in an Australian agricultural commodity. For example, Grain Trade Australia.
- Increase industry governance standards and perception through appointment of an independent Chair.

Regulation

DPIRD and WA Government to consider:

- Advocating for legislation for greater supply chain information through legislation or voluntary industry similar to the USDA Livestock Mandatory Price Reporting Act.
- Engage with Grain Trade Australia (GTA) or other industry body (for example dairy AIDC) to work with and support the WA sheep industry develop a robust dispute resolution system and contracting framework.
- Advocating for the delivery of a minimum industry standard Code of Conduct with regards to agents and other key stakeholders.

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1. INTRODUCTION

The Sheep Industry Business Innovation (SIBI) project is made possible by the state government's Royalties for Regions (RfR) program. The SIBI project started in October 2015 and will conclude in June 2019.

The SIBI project focuses on the establishment of dedicated supply chains aligned to customer needs in new markets (predominantly international) as well as increasing business and technical skills of producers and processors to maximise their business' efficiency, productivity and profitability to supply these new value chains.

1.1 BACKGROUND

The Western Australian (WA) sheep industry has been in general decline in terms of sheep numbers and contribution to the state's economy since the early 1990's. This has been due largely to the cessation of the reserve price scheme for the wool produced by sheep, new technologies and innovation related to dryland cropping that has become the dominant enterprise in the WA agricultural sector and decline in availability of semi-skilled labor for the sheep industry. The sheep industry is also structured on spot, short term marketing at both ends of the physical supply chain, making supply and associated pricing relatively volatile and unpredictable. There is currently a lack of market mechanisms applicable to WA to support reducing this production and price volatility and risk for participants within the physical supply chain (i.e. producers and processors).

There is also a general view that WA lacks critical scale in terms of sheep supply and the supporting supply chain infrastructure (mainly production based) to meet forecast international consumer demand for sheep and lamb meat products. A key aspect of this lack of critical scale and supply chain investment the absence of market based risk management and contracting framework, that could facilitate greater coordination, integration and longer-term decision making and investments to be made within the WA sheep supply chain.

Analysis by the Department of Primary Industries and Regional Development (DPIRD), as well as surveys by the Australian Bureau of Agricultural and Resources Economics (ABARES) and Meat and Livestock Australia (MLA)/ Australian Wool Innovation (AWI) show the WA sheep population remains in decline despite ongoing positive market demand signals. Supporting the need to investigate the viability and structure required to establish forward supply contracts for WA sheep to make clearer and longer-term decision making and support growth in the sector.

1.2 PURPOSE OF THE STUDY

The aim of this study is to identify an appropriate draft template for commercial forward supply contracts in the WA sheep meat sector. In developing this draft forward contract, it was important to review relevant literature and engage with key stakeholders to understand not only the current challenges facing the WA sheep sector and its supply chain but also to review and understand other existing contracts for comparable commodities to develop a response specific for the WA sheep meat sector.

The delivery of forward supply contracts has the potential to provide additional opportunities for the WA sheep meat sector, beyond those achieved through productivity and efficiency, as a result of greater supply chain integration and investment derived from the increased utilisation of forward contracts within the physical supply chain.

This report will be directly relevant and transferable to the Sheep Industry Business Innovation project and WA sheep industry broadly.

1.3 APPROACH

The project involved four core phases as outlined in the table below.

Table 1.1. Study Approach

Phase	Description
Phase 1: Background Research	<ul style="list-style-type: none"> Identify key challenges facing the WA sheep meat sector via: <ul style="list-style-type: none"> Detailed literature review. Key industry stakeholder engagement. Workshop(s) with DPIRD staff.
Phase 2: Existing Forward Contract Review	<ul style="list-style-type: none"> Identify and review relevant and comparable forward supply contracts that are in operation in other agricultural commodities including meat, to understand what has worked well, what has not worked and what needs to change. Includes key stakeholder engagement with industries currently participating in forward supply contracts.
Phase 3: Preliminary Forward Supply Contract	<ul style="list-style-type: none"> Develop an industry best practice forward supply contract, based on the learnings and experiences from other sectors that is suitable for use in the adoption in the WA Sheep meat sector. Includes preliminary legal review.
Phase 4: Industry Engagement & Extension	<ul style="list-style-type: none"> Engage with and test the preliminary forward supply contract template with key industry representatives. Incorporate feedback as appropriate into draft forward supply contract template.

1.4 CONFIDENTIALITY AND DATA LIMITATIONS

1.4.1 Limitations Regarding Data Availability

There is varying availability and quality of data and information across different sectors in the agricultural and food industry. One of the significant challenges in undertaking an exercise of this nature is accessing reliable and accurate data and information. In general, the study found that there was limited collective industry wide available data and information on pricing, forward contracts and supply chain arrangements in the Australian sheep and beef sectors.

In general, reliable price discovery and price transparency is difficult to obtain beyond that reported from livestock saleyards. This study has drawn on data and information where available and has also included information and guidance from commercial participants, which have supplied information subject to confidentiality (refer 1.4.2), which have governed how the information is disclosed and presented.

As the food industry becomes more concentrated and integrated the strong influence of commercial interests will generally ensure there is less transparency of information and more limited availability of market intelligence.

The report acknowledges the information provided by commercial sector participants from lamb and beef sectors and all the other agricultural commodity sectors reviewed in this study and is grateful and appreciative for their assistance.

1.4.2 Confidentiality

All interviewees and stakeholders were guaranteed confidentiality in the meetings and discussions, as well as anonymity if they wished. Given the commercial in confidence and market sensitive information obtained during the conduct of this report, all such requests are honoured in this report. Therefore, no organisation names, individual names or titles are included in the report. Comments and information obtained through the course of the research and study, have been reported without specific reference to the individual or organisation.

2. EXPLANATION OF KEY TERMS

The following section provides some background detail and explanation of key terms used in this study.

Sheep

The term 'sheep' as used in this report includes lambs, mutton and hogget unless otherwise specified.

Forward Supply Chain/ Contract Arrangements

Forward supply chain arrangements can refer to agreements between relevant parties in the physical sheep supply chain for the delivery of physical sheep supply at specified standards and protocols at some time into the future. These physical supply chain arrangements may include specific contracts or ongoing agreements or arrangements as agreed between parties.

Relationship Between Forward Contract Arrangements and Value Chains

There is a logical and inherent relationship between forward supply arrangements and value chains in agricultural commodity sectors. The focus on forward contracts in value chain relationships is not solely based on price but on risk management that reduces market volatility and creates optimal value through the supply of livestock to desired specifications, standards and timing. This then flows into the greater decision-making ability for relevant parties that enable informed investment planning decisions.

The focus of value chains in terms of maximising productivity, profitability whilst increasing risk management practices is supported as follows.

Figure 2.1. The Value Proposition for Dedicated Supply Chains



Source: Rabobank (2013).

However, it should be noted that whilst the value chain approach is logical and sound, the market structure, historical experiences and supply chain culture within the WA sheep industry and other agricultural commodity sectors examined result in difficulties in implementing long term value chain in practice. Significant effort, support, commitment and trust by supply chain parties is required for the implementation of forward contracts in the WA sheep value chain.

Derivatives

A derivative security is generally referred to a financial contract whose value is derived from the value of an underlying commodity asset.

A derivative is a date specific contract to buy or sell an underlying physical asset (e.g. wool, wheat, livestock). The contract, regardless if it is a futures, options, swap or forward contract is derived from the underlying commodity asset and therefore cannot exist without it. When using derivatives, it is not necessary nor required to have an ownership in the physical underlying asset. One of the most attractive features of derivatives is that they are leveraged instruments whereby, a deposit or margin can be used to gain an exposure to the market that is many times larger than the deposit.

Additional detail regarding types of derivatives and their use is provided in Appendix A.

Hedging

Hedging, or commodity price risk management, allows market participants to manage their commodity price risk fluctuations by using derivatives to provide protection against a negative event, adverse price movements in the physical commodity. For example, by using derivative products a seller and a buyer of the underlying commodity can lock in their respective selling and buying prices in anticipation of a future dated physical cash transaction. This is referred to as an anticipatory hedge whereby the purpose is to establish a fixed purchase or sale price. The purpose of hedging is to offset any loss that you may make in one market, is offset by a profit in the other market.

3. OVERVIEW OF THE SHEEP INDUSTRY

This section provides an overview of the Australian and WA sheep industry, including a detailed review of the current sales transaction process, pricing information, and use of forward supply contracts.

The information presented is based on consultation with key industry stakeholders and literature review of key industry sources (Meat and Livestock Australia, DPIRD Market Analysis, IBISWorld Research).

3.1 KEY INDUSTRY INFORMATION

The sheep industry is a significant contributor in terms of economic value, supply chain jobs and export value to the Australian and WA agricultural sector and wider economy. Australia is the world largest exporter of sheep meat and is the world's second largest producer of lamb and mutton behind China (#1) and ahead of New Zealand (#3) (DPIRD, 2017). Key sheep industry facts include:

- As of June 2016, there were estimated total 67 million head of sheep in Australia, with over 50% of these located in NSW and Victoria.
- The WA sheep flock numbered 13.9 million head at the end of 2015/16 and produced high quality meat and wool for world markets.
- The majority of WA sheep are located in the southern agricultural cropping zones of the state, with some also located in the southern rangelands.
- There are about 4,500 sheep farms in WA and about 80% have flocks of over 500 sheep.
- Breeding ewes make up 52% of the flock. Since the early 1990s, the proportion of breeding ewes in the flock has been increasing as the industry transitions from a reliance on wool to a dual-product wool and sheep meat industry.
- Lamb had the third-highest share of retail sales of any meat in 2016/17, with an estimated 13% share of fresh meat sales.
- In 2016/17, Australia exported 57% of total Australian lamb production and 92% of total Australian mutton production.
- Most (72%) of the sheep processed in Western Australia were exported to international markets with the remaining 28% consumed locally
- There are 16 abattoirs that process sheep in Western Australia, nine of which are export accredited.
- Four live export companies operate out of Western Australia with the majority of sheep loaded in Fremantle.
- Due to Eastern Australia's population and relative proximity (compared to WA) to major urban centres and numbers of stores to fulfil, the major retailers (who account for the majority >70%) of grocery sales in Australia adopt direct sourcing of lamb from producers in major Eastern States sheep markets.
- WA recorded sheep sales for processing and live export totaling 5.5 million head in 2016/17. Of these sales, 66% of the sheep were processed in WA, 30% exported live and 5% sold interstate.
- In WA local consumption accounts for an estimated 23% (800,000 head) of the total processed sheep (3.5 million head) with the remaining 77% exported.
- In Eastern and Southern Australia, the major sheep processing companies are JBS Australia, Thomas Foods International, Fletcher International and Midfield Meats. In WA, the major processing companies are Fletcher International, Western Australian Meat Marketing Co-operative Limited (WAMMCO), V&V Walsh and additional smaller sheep meat processing companies specialising in air freight sheep.
- Export markets for lamb and sheep products are influenced by exchange rates, shipping logistics and global protein supply and price competition.

- In high value sheep meat export market like the EU2015, New Zealand has a significant advantage over Australia (WA). NZ had a 228,254 tonnes carcass weight equivalent quota allocation, while Australia had just 19,186 tonnes carcass weight equivalent.
- Australia holds a very small EU quota for sale of sheep.
- Lambs extensive production and lack of intensive specialisation difficult to achieve high uniformity and product consistency.
- Lamb processing units are more difficult from a supply chain perspective.
- RSPCA accreditation is not a major influencer for lamb as it is for the more intensive chicken, beef and pig industries.

3.2 SHEEP SALES TRANSACTIONS

3.2.1 Current Market Transaction Process

The majority of sheep transacted in Australia are sold on the spot market in livestock saleyards through the public 'open cry' auction system conducted by livestock agents or through the online livestock sales platform AuctionsPlus. Outside of this sheep are sold on the producer's farm, whereby the purchaser will physically inspect the sheep and negotiate pricing (\$ per head) or Over the Hooks (OTH) with the farmer for delivery to a specified location, typically within one month of inspection. This on farm sale transaction may or may not involve a livestock agent depending on the market and producer preference.

The types of sheep market transactions in Australia are generally as follows:

- Domestic slaughter sheep sold 'Over the Hooks' (OTH) or on farm (\$ per head) by producer to processor and processed in Australia at abattoirs for either domestic (supermarket, food service, wholesale) or export markets (primarily China, United Arab Emirates and USA).
- Live export sheep sold by producer to a live export company and exported live to global markets, predominantly the Middle East (primarily Kuwait and Qatar) on special purpose livestock ships.
- Store or reseller sheep that are sold for further finishing or may be used for future breeding purposes.
- Breeder sheep sold from one producer to another producer to become future breeders of sheep.

In Eastern States major retailers offer/ secure contracts direct to lamb producers to ensure supply continuity of supply lambs to the required specification for supermarket trade. In WA major retailers operate on direct processor procurement model with processors. The processors may in turn manage continuity of supply of lambs for domestic trade markets with larger, capable producers through supply chain arrangements that involve processing space allocation and minimum agreed pricing indexed to spot grid schedules and markets.

3.2.2 Current Sheep Industry Pricing Information

Meat and Livestock Australia (MLA) is the sheep, cattle and goat's industry's research, development and marketing services organisation. MLA's market information service provides the red meat industry with timely, accurate and independent market information. The service consists of eight analysts and 27 livestock market officers (LMOs), who attend and report up to 70 saleyard markets per week.

Saleyards reported by MLA's Market Information team are selected based on their significance to both the region and the industry. The decision to report markets is assisted by the annual national saleyard surveys to ensure an adequate proportion of the Australian cattle and sheep market is captured. MLA's Market Information Service is ISO Quality Assurance accredited.

Guaranteeing the service's accuracy is not only restricted to the preparation of physical market reports. Market Information compiles reports on direct sales, slaughter statistics, and skin prices from reliable industry sources. The only way this can be accurately achieved is ongoing liaison with industry. This information is then compiled and further analysed by head-office staff to create detailed, tailored reports for sectors and regions within the

industry. This includes detailed trends and analysis on industry projections, live export, lot feeding, co-products, export markets and much, much more.

MLA provide market information for a range of sheep markets including saleyards, over the hooks and reseller sheep. The MLA also report a weekly National Trade Lamb Indicator (NTLI) reference price. These statistics and information are publicly available on the MLA website. In addition, the following market information services are provided:

- **Sheep Co-Products:** approximately 25 abattoirs across Australia participate in MLA's beef and sheep co-products survey, collating average prices and trends for all co-products items.
- **Australian livestock exports monthly trade statistics** (in arrears volume not prices) summary.
- **Sheep Industry Projections:** Published three times a year, the report provides a comprehensive outlook on the sheep industry, including forecasts for the national flock, sheep and lamb supply and exports over a five-year horizon.

3.2.3 Seasonal Production and Price Discovery

The WA sheep industry production is highly seasonal, with a peak supply turn-off pattern in the months from September to November each year due to climatic, management and economic (lower cost of production) factors.

The WA and global sheep industry does not have a hedging market or suitable commodity cross hedge to guide future price discovery in the months outside of peak supply that can facilitate price and financial risk management for both ends of the supply chain, from producer through to processor and end wholesale and retail customers. The lack of futures market in the sheep industry is important, because in the absence of a liquid and operating futures market, the central management decision challenges of price discovery and financial risk management require alternative and innovative approaches for the development and design of forward supply arrangements and contracts within the industry.

The issue of seasonal production in the WA sheep industry is confirmed by Young (2017) whereby, the lamb production system in WA is characterised by a large supply of lambs finished on green feed during spring (September to November) and a subsequent reduction in supply through summer, autumn and winter (December to August). This pattern of lamb supply reflects the cost of production for finishing the lambs for market processing weights, with it being cheapest finishing on green feed and progressively more expensive as the season progresses. Young (2017) also finds higher prices are offered for out of season (production months December to August) lamb, however, historically these premiums have not been sufficient to entice farmers away from the sucker lamb production system (September to November).

3.2.4 Market Data and Transparency

In the context of this sheep industry study, transparency generally refers to a state where all market participants have access to information on the prices achieved and costs incurred at each point along the supply chain – from farmgate through to retail – as well as the market conditions that influence pricing.

In most markets there is less than perfect information. In the food industry the link between retail and farmgate price is not always obvious, particularly where primary produce is substantially transformed post-farmgate. In many instances price signals that can inform a primary producer about consumer demand for specific attributes or quality issues are less than effective. This reduces market efficiency and can add to supply chain costs.

Barriers to greater transparency include but are not limited to:

- **Commercial interests:** Greater transparency is not in the interests of everyone. In fact, information asymmetry is often an advantage for supply chain participants. Those who have a greater understanding of market conditions and supply chain margins can leverage this superior knowledge in their transactions with supply chain partners. Often this superior knowledge is the result of significant investment and/or market power, and there is little incentive to change the status quo.
- **Investment cost:** Food supply chains are complex with many suppliers, multiple channels to consumer and product variants. The investment required to develop and maintain systems to collect, analyse and distribute

data that is comprehensive and timely is significant. Increasingly this investment has fallen to industry organisations with varying abilities to resource the activity.

- **Enforceability:** Regulations that demand transparency are difficult to enforce since they can often be avoided by supply chain participants. As industries have been deregulated in many cases, market information provision has passed to industry organisations. As a result, there is even less ability to compel supply chain participants to submit information without the legislated powers of the ABS or other regulatory bodies.
- **Ability to collaborate:** The propensity of supply chain participants to collaborate in the sharing of cost and price data is highly variable, both between and within food supply chains. While in general primary producers of similar products may be willing to share data, the collection may be onerous. On the other hand, wholesalers and retailers who are in direct competition could access the data but may be unwilling or even precluded from sharing it. For example, the ACCC has recently taken action against petrol retailers for sharing close to real time data on the grounds that it facilitates price collusion.

3.2.5 Disputes Resolution and Arbitration

No formal dispute resolution and arbitration process is in place. Disputes are negotiated directly between producer, processor/ retailer with often a third party Del Credere Livestock Agent (e.g., Landmark, Elders) utilised by the producer to act on the producer behalf in the event of disputes and non-payment.

3.3 USE OF SHEEP FORWARD CONTRACTS IN THE SHEEP INDUSTRY

The Australian sheep industry generally does not have a well-developed and consistent physical forward contracting system beyond the short-term range (between 1 and 4 months) that involve producers to either the processing or the live export sector. However, there are forward contracts offered by sheep processors to attract the required supply of sheep in months that are historically difficult to supply or to supply specific market demands. For example, in December/ January due to the annual holiday period in Australia and May to July, the out of season production and winter months in Australia. The live export sector may also offer producers forward contracts to ensure the supply of specific classes of sheep required for religious events in the Middle East.

Key characteristics include:

- Base minimum price for a set specification of trade lamb i.e. Hot Standard Carcass Weight (HSCW), fat cover at GR site of lamb carcass.
- A discount schedule applies for characteristics not to specification. For example, grass seed infestation.
- Premiums can be payable if weekly spot grid price is higher at time of delivery (with the spot weekly grid price controlled by the retailer).

To assist downstream buyers of slaughter sheep stock, there has been sheep value calculators developed by Meat & Livestock Australia, that provide detailed gross margin returns and specific information down to carcass cut detail on processed sheep based on input pricing of the sheep.

The forward contracts for the physical supply of sheep is typically offered by processors and retailers (where applicable) are between 1 and 4 months range. Live export forward contracts for the supply of specific classes of sheep can be offered between 1 and 6 months range.

Key impacts of forward contracts are:

- Consistent supply, quality, volume and timing to specification.
- Long term investments along the supply chain.
- The major retailers operate a direct carcass procurement model from processors. This demonstrate that hitherto, this model is working to the optimum advantage for the WA sheep industry, major retailers and processors.

A comparison of marketing arrangements commonly used for different commodities, based on the case studies undertaken for this project (Appendix C) is presented in the table below. The table highlights the transaction

processes in the Australian (and WA) sheep industry are not dissimilar to many other agricultural commodities, with a mixture of primarily spot market with some short to medium term contracts. However, the sheep industry's use of short to medium term contracts is relatively minimal. Additional details regarding other commodity markets is provided in Appendix C.

Table 3.1: Marketing Arrangements by Different Commodity Agricultural Sectors

Industry	Spot Market	<12 months	1 to 5+ year	Operational Derivatives ^(a)
Australian Sheep				
New Zealand Sheep				
Australian Beef				
Australian Pigs				
Australian Dairy				
Australian Grain (Wheat)				
Australian Hort (product specific)				
USA Red Meat				

Notes: (a) Markets including OTC & Exchange
Source: Various (See Appendix C)

The creation of a stronger forward pricing mechanism from the processing sector may entice more farmers into an alternative lamb production system to avert the high seasonal peaks currently exhibited in the WA sheep industry (Young, 2017). However, to achieve real practice change on farm, a higher forward price incentive than that calculated, may be required by producers because of the out of season risks associated with carrying the lambs longer.

Market risk, including price volatility and lack of future price visibility could be reduced for producers if sheep meat processors introduced a strong forward pricing mechanism that farmers believed and could plan their production around. It would be advantageous for the WA sheep processing sector to have a more even supply of lambs through the season, because this would allow them to supply markets on a consistent basis throughout the year and to better utilise the capital invested in abattoir facilities (Young, 2017).

The issue of seasonality, volatility and having greater supply chain integration with forward pricing contractual arrangements in the WA sheep industry is identified by Duddy (2017), who found alliances across the sheep industry supply chain stakeholders was required including, backgrounders, feedlotters and processors supported to support contractual arrangements. The report recommends greater emphasis on modifying lamb supply production patterns to minimise seasonal price variations.

The increase in collaboration between producers is viewed by Ernst & Young (2016) as means for producers to forward integrate and enter into forward supply chain arrangements with downstream participants. This forward integration by entering into the forward supply arrangements with processors could positively influence seasonal lamb supply production and reduce price volatility.

3.4 OBSERVED ISSUES AND INDUSTRY RESPONSES

A review of the case studies examined in Appendix C as well as the research conducted for the Australian and New Zealand sheep sectors highlights forward contracts are regularly used to either partially or fully address existing industry issues. A summary of these is outlined in the following table.

The overarching impact of contracts common to all agri-food examples is demonstrated as price stability and certainty, producers delivering production that the market and consumer demands, guarantee for offtake and processing, wholesale and middleman bypass, ability to generate finance and investment along the supply chain particularly when contracts are with strong credit rated counter parties.

Table 3.2. Overview of Issues and Responses

Sector/ Issue	Action/ Response	Impact
Sheep Industry – Australia (Domestic Trade Lamb)		
East Coast population growth and growth of supermarkets market share for grocery market in Australia and lamb as a staple base protein to attract consumers to store.	East Coast supermarkets develop contract arrangements direct with producers to guarantee quality specifications, volume, timing, price for store fulfilment.	Producer has strong counter party to reduce payment risk, guaranteed off take, known specifications and pricing. Due to East Coast scale of requirements for domestic trade lamb, this enables supply chain investment, for example Australian Lamb Company and sheep production specialists in East Coast.
Sheep Forward Sale Platform – AuctionPlus Australia		
In 2000s the Internet enabled a user friendly electronic platform with ease of recording and viewing by market participants. In addition, mobile telephone use and adoption has become mainstream since the 2000s.	AuctionPlus developed and launched forward sales T&C targeting store reseller and breeder stock as alternative to physical auctions.	Record numbers of reseller store and breeder livestock forward sold on AuctionPlus in 2017. AuctionPlus now seeking to develop increased adoption of forward sales for finished stock noting that additional risk for processors and buyers due to pricing based on finished carcass specifications as compared to price per head or liveweight for store and breeder.
Sheep Industry – New Zealand		
Alternative use allocation, declining sheep flock numbers and supply chain profitability.	New Zealand Government intervention PGP project program targeting increased sheep meat value chain development. Joint Venture developed with processor Silver Fern Farms (SFF) to market Silere branded lamb, offered producers 3-year contracts with minimum guaranteed price.	Spot markets deviated significantly resulting in price risk assumed by JV without contract commitments for off-take out for 3 years. Financial loss for JV due to spot market moves. SFF exit JV. Forward contracts reduced to maximum 6 months.
Beef Cattle Industry – Australia		
Similar to Australian sheep industry example.	Similar to Australian sheep industry example, however, direct producer contract model also operated by major retailers in WA. A key difference to the sheep industry is that cattle are grain finished intensively with lower numbers for logistics and supply chain management (due to larger size).	Due to major retailer investment and commitment the beef industry has responded with supply chain infrastructure and genetics investment. The Southern branded beef contract example is due to creation of domestic and export consumer demand for premium high value beef. Consumer demand has also led to the establishment of contracts by major retailer for beef produced HGP free.

Sector/ Issue	Action/ Response	Impact
Pig Industry - Australia		
<p>Producer consolidation over past 30 years and consumer demand for ethically produced pigs to high animal welfare standards linked to consumer concerns over production methods.</p>	<p>Single industry peak body established APL limited to counter pig meat imports and unite the Australian industry for marketing and promotion. Large producer negotiates ROI 10 year supply contract with major retailer to supply volume, specifications to welfare and ethical standards.</p>	<p>Large grower is now an umbrella for 15 other growers producing pigs for major retailer guaranteeing ROI in exchange for weekly supply of pigs to retailer set specifications.</p>
Dairy Milk Industry – Australia		
<p>Producer consolidation over past 30 years, export growth demand in past 5 years. Highly perishable product sold daily as staple food product in Australia. Export growth in 5 years to China.</p>	<p>Contracts with range of pricing methods with base minimum for producers to guarantee volume, quality, standards and provide regular cash flow to support milk as a staple grocery item product ion the supermarket shelves daily. Contracts used to increase milk production for export markets to China (East Coast of Australia). Milk Supply Agreement Contracts implemented but clause with retrospective price step downs & pay back creates issues for EXPORT orientation processors and their contracted producers facing severe financial difficulties to meet retrospective price step-down payments.</p>	<p>ACCC investigation and report into Dairy Industry. ACCC Recommended that -agri-food products avoid price step-down clauses in contracts.</p>
Grain Industry Wheat - Australia		
<p>Single desk deregulation in 2000s. Growers become responsible for marketing to a large range of buyers not just AWB. Previously produce wheat and deliver to AWB for payment.</p>	<p>Established industry body GTA to develop market based trade rules, contracts and dispute resolution service. A large range of marketing options developed by new market entrants to the grains (wheat) industry and specialist advisers to advise on marketing options and forward contracts.</p>	<p>Adoption by industry of new marketing options including contracts. Producers much more marketing oriented. Peak body GTA function developed and supported by industry.</p>
Horticulture Industry - Australia		
<p>Supermarket and producer consolidation over past 20 years. Highly perishable and seasonal products. Dominant role of wholesale markets and middlemen. Consumer demand for product freshness, consistently, quality, colour, taste, Australian grown.</p>	<p>Large producer and collective group negotiates contracts with processor/ retailer for minimum guaranteed returns to supply product to specification and volumes delivered at scheduled timings.</p>	<p>Price stability, guarantee offtake and processing capacity, ability to generate finance and reinvest in supply chain (For example, irrigation equipment, machinery, packing sheds).</p>

3.5 TYPICAL SHEEP FORWARD CONTRACT DETAILS

There is no current industry standard or normal contract for the Australian sheep sector, as each processor or live export company will have their own specific requirements, standards, specifications and terms and conditions. However, typically, forward sheep contracts in Australia will contain the following information:

- Organisation details.
- Pricing formula and type. For example, \$ per head or cents per kilogram Hot Standard Carcass Weight (HSCW) (with reference to AUSMEAT Language).
- Offer and closing dates of contracts.
- Payment terms.
- Weights (either liveweight or carcass weight).
- Curfew periods.
- Fat scores.
- Discount penalty and premium schedule based on specifications.
- Minimum consignment number.
- Breed.
- Wool length.
- Minimum grain feeding periods where applicable.
- Place where title and risk transfers to purchaser.
- Delivery dates and location.
- Declarations to cover production quality assurance, food safety and meat standards.
- Compliance with chemical residue limits.
- Sheep identification and property identification codes.
- Force majeure clause.
- Non-transfer of contract.

4. SHEEP FORWARD CONTRACT CHALLENGES

A detailed and extensive literature review was undertaken to identify and obtain contextual background information on the challenges and constraints specific to the WA sheep industry that are relevant to the future development and application of forward contracting arrangements. In addition, the challenges, risks and experiences from other livestock and agricultural industries, both domestically and internationally are incorporated in this literature review and further tested via engagement with key stakeholders from within these case study industries. This chapter contains a summary of the key challenges, barriers and advantages identified, as they pertain to the Western Australian sheep sector and a detailed summary of case studies is presented in **Appendix C**.

The purpose of the literature review is to provide further information and context to better understand the WA sheep industry challenges, constraints and opportunities for the development of potential future forward marketing arrangements and templates that may be considered for adoption by the WA sheep industry.

4.1 OVERVIEW

Currently there are no forward contracts for sheep in Western Australia (WA) that are legally enforceable. There are some (arrangements) that operate essentially as 'bookings' that provide a minimum price but these can be cancelled by either party with impunity. Importantly they (arrangements) apply to a maximum time frame of 4 months only, so can have little influence on long term management decisions taken by either the producer or processor.

The lack of forward pricing in the futures market means that farmers cannot invest in their sheep flock with confidence. Investment decisions such as buying ewes, retaining ewe lambs or feeding to higher live weights expose the farmer to an unacceptable level of risk if the sale price of the lamb is unknown. In other words, a profit or loss on the decision to invest in sheep cannot be determined at the time the decision has to be made. This represents a key impediment to investment in sheep production.

Similarly, processors have little certainty about the source and timing of their supply under the current system. This impedes investment by processors to provide to expanding markets as they can have little confidence in their capability to supply meat product. These effects on producers and processors combine to lower confidence and trust across the industry and prevent growth.

The flow on effect for investment from a forward contracting structure in WA will be substantial. Once forward sales are made, cash flow will be more predictable and stable so the farm business will become more investable. This will lead to more investment options such as alternative ownership structures in farm business which become more attractive to outside equity. Creating a forward market for prices and supply will translate to a more stable and predictable cash flow which is critical to gain (future) investment confidence.

Sheep Industry Business Innovation (SIBI) project, (Stretch, 2015).

Effective forward supply chain arrangements and contracts that are available for current and future supply chain participants is seen by some observers as a critical component to increasing the investment attractiveness of the WA sheep industry (Stretch, 2015). The creation of longer term contracts between producers, processors and exporters has the potential to facilitate more value chain based relationships that provide win/win benefits to all parties.

There are, however, fears from the production side in supplying livestock due to adverse seasonal conditions and of forward contracts 'being out of the money' if physical spot markets move higher at time of physical sale. Conversely purchasers fear not receiving the contracted sheep due to either seasonal conditions, substitution or non-delivery of sheep due to higher markets. Purchasers also share the fear of 'being out of the money' if they can purchase stock more cheaply than the forward contracted stock at time of physical supply.

The lack of medium term forward contracts to create market certainty and stimulate productive longer-term investment decisions is not unique to the sheep industry, as confirmed by the ACCC below in reference to the horticultural industry.

A key issue in both industries (horticulture and viticulture) appears to be a lack of future certainty. In many cases, market participants have very little information about prices or do not have forward contracts. For example, consider a fruit grower that does not have a written contract with a processor, or a winemaker that has no ongoing agreements with a retailer. In both instances, it is likely the processor and retailer could end the arrangements at any time without legal ramifications. This lack of certainty is likely to make investment unappealing or inefficient, and to reduce the future growth of the industries.

Australian Competition and Consumer Commission (ACCC)
 Perspectives in horticulture and viticulture
 Industry views on competition and fair-trading challenges
 27 October 2016

4.2 KEY ADVANTAGES AND DISADVANTAGES OF FORWARD ARRANGEMENTS

There are a number of headline advantages and disadvantages of forward contract arrangements that have been identified through literature review, case studies and industry consultation, with potential to impact on either the seller and buyer. A summary of these advantages and disadvantages is presented in Table 4.1 below. Additional details are provided in Appendix C and Appendix D.

Table 4.1. Key Advantages and Disadvantages of Forward Arrangements

Key Advantages	Key Disadvantages
<ul style="list-style-type: none"> • Managing risks • Removes uncertainty, building market security and confidence • Reduces volatility for entire supply chain • Income stability, providing improved budgeting and financial management • Enables infrastructure investment planning • Enhances productivity and efficiency value through delivery to specifications • Facilitates coordination among stages of production, and build value chain relationships between producer and downstream processor (aids information and data flows) • Increase supply chain infrastructure utilisation • Increase confidence to grow sheep supply and assure adequate supply • Improved quality control • Potential alternative sources of finance and improved access to capital through income stability • Reduced transaction and financial costs • Intellectual property protection 	<ul style="list-style-type: none"> • Reduced market flexibility • Price risk assumed by processor • Production risk for producer • Spot market price deviates from forward contract price • Purchaser obtaining back to back commitments • Potential market concentration • Risk of reduced competition in spot markets – The greater use and adoption of forward contracts reduces the participation of buyers in spot markets. (However, this is potentially offset by reduced supply in spot markets.) • Loss of price information – due to increased use of contracting may reduce availability of publicly available pricing transparency. • Risk of not being paid

Source: Various sources (see Appendix C) and Industry Engagement

The increased use of forward contracts in the WA sheep industry will present positive and beneficial effects through greater price discovery and transparency that will lead to better informed management and investment decisions relating to sheep flock expansion and related supply chain infrastructure. The positive effects from the increased use of forward contracts will support overall industry sustainability and subsequent investment.

However, investment decisions for any industry are based on a range of factors, not simply the presence or absence of forward contracts, including supply demand forecasts, highest and best land use, competitive and comparative advantages, trade agreements and market challenges and asset liquidity including allocation of capital to sectors of highest anticipated return whilst balancing risk/return factors.

The intention should not be for the WA sheep industry to become dominated by forward supply arrangements and contracts as a means of selling all sheep and lamb. There will always be a place for spot markets due to the extensive means of production across vast distances in WA that is subject to significant annual climatic variability and the dynamic shifts that occur year by year in land use allocation by producers and their consultant's due to global grain market conditions. However, the opportunity for greater supply chain integration through an effective forward supply arrangement and contracting system can provide benefits to all participants along the supply chain. To successfully achieve this a proactive, positive and creative approach to addressing the core challenges, constraints and barriers is required along with long run collaborative industry leadership and willing participants.

4.3 CONTRACT LENGTH AND IMPACT ON SPOT PRICE

The issue of future price volatility and poor visibility is evident in the New Zealand sheep industry, whereby the forward contracting period for premium lamb products marketed under the 'Silere' brand offered by major New Zealand sheep meat processor, Silver Fern Farms has been reduced to between three and six months due to the volatility of sheep meat prices. Previously, the forward contracting period had been available out to three years for specific suppliers of lamb (PwC, 2014). However, consideration should also be given to the fact that a possible decrease in buyer demand could also be reflected in decreased supply of lamb to the spot market (Emmett, 1992).

In the USA beef sector, regression analysis of the relationship between cash market (auction barns, dealers and brokers, and direct trade) transactions prices for fed cattle and use of alternative marketing arrangements (AMA's) found that if capacity utilisation within a plant increases through the use of AMAs, firms pay slightly less for cattle purchased in the cash market. Specifically, a 10 percentage (10%) point increase in capacity utilisation through AMAs is associated with a 0.4 cent per pound carcass weight decrease in the cash market price. If more cattle are available through AMAs within the following 21 days, cash market prices decrease slightly. Specifically, a 10% reduction in the volume of cash market transactions, assuming that volume is shifted into AMAs, is associated with a 0.11% decrease in the cash market price (GIPSA, 2007).

4.4 SUMMARY

There are a number of risks and challenges to creating and sustaining longer term forward contracts beyond six months. This is evident from the New Zealand Silere' lamb example whereby forward supply contracts with fixed price minimums were reduced from three years to less than six months due to the processor bearing the price risk and significant price deviation in the physical spot markets. In addition, some of these challenges relate to the geographic isolation of Western Australia, with a relatively small domestic consumer population base (less than 3 million). This makes Western Australia heavily export dependent and exposed to variations in currency, trade and market access, and international logistical supply chains. The case studies examined demonstrate that forward contracts in the domestic market are far more common due to lower risks and complexities in delivering product to end customer as compared to export markets.

Implementation of forward contracts is further hampered by supply chain fragmentation; the industry lacks concentration and intensive specialists with over 4,500 producers with sheep flocks. By comparison, the WA pig industry has a single major processing facility and over 80% of production is controlled by 12 pig producers. The ability to forward integrate downstream is made easier with large scale producers in the pig industry who can manage and influence production standards, genetics, animal welfare standards, carcass specifications and timing of turn-off.

A number of key challenges are also present from a processor and end buyer perspective. The potential barriers that would need to be addressed around the implementation of (medium term 6 to 12 months) forward supply arrangements and contracts include:

- Securing consistent and certain contracts with customers, retail and/or wholesale to enter into medium term (>6 months) forward supply contracts with producers.
- Buyer and seller behaviour, whereby spot cash markets fall below the forward contract price at time of physical delivery meaning forward contracts 'were out of the money'.

- The lack of an active, liquid derivatives market for contracting parties.
- Lack of forward price discovery references and ability to market a range of prime, co and by sheep products to multiple domestic and export markets.
- Changing procurement models that currently operate in the Western Australia sheep industry.
- Guaranteeing the physical delivery quantity and quality of sheep and lambs by contracted producers suppliers.
- Cooperative processor may need to offer all members equal marketing options under a one vote one value cooperative principle.

The challenges that need to be addressed to successfully develop and implement a functional and effective medium term (6 to 12 months) forward contracting supply system for the Western Australia sheep industry have been sufficiently overcome in other agricultural commodity sectors operating with and without derivative markets, including meat, both domestically and internationally. Specific examples include the Australian pig and dairy industry and the growing use of short term (<6 months) physical forward contract arrangements in the beef and lamb industries in Eastern Australia. In New Zealand, forward supply arrangements and contracts have been adopted for lamb in both domestic and export markets based on supply chain cooperation and coordination, but the contract length has been reduced in recent years.

The use and adoption of forward supply arrangements and contracts by the WA sheep industry supply chain could assist supply chain participants and future investors in:

- Managing risk
- Alleviate peak seasonal production supply
- Increase supply chain infrastructure utilisation
- Produce higher quality meat to customer specifications (branded high value programs)
- Grow total output supply aligned to customer requirements
- Obtain alternative sources of finance
- Support the attraction of new capital investment (from existing and new participants).

The opportunity for greater supply chain integration through an effective forward supply arrangement and contracting system can provide benefits to all participants along the supply chain but a proactive, positive and creative approach to addressing the core challenges, constraints and barriers will require long run leadership and willing participants.

A summary of the key challenges of implementing forward contracts in the sheep industry are presented in the table below, along with potential solutions to overcome or minimise the adverse impacts of these challenges.

Table 4.2. Summary of Forward Contract Challenges from Literature Review and Stakeholder Discussions

Ref	Issue	Description/ Context	Potential Solution(s)	Mentioned in
1	Processor/exporter ability to obtain back to back contracts for prime sheep meat products, live sheep.	Situation whereby processor/exporter enters into forward supply contract/agreements with producers but may not have agreements in place with their wholesale, retail, end customers for sheep meat products.	<ul style="list-style-type: none"> Secure back-back contracts with major retail outlet, wholesaler or foreign market importer. Secure back-back contracts for full set carcass, specific major value cuts. The processor would need to sell a differentiated 'branded' product rather than a commodity as it is more difficult to forward sell a commodity product. 	Stretch, 2015 Industry Source
2	Fear of loss that future spot market prices will deviate significantly from forward contract arrangements.	This fear of loss or 'being out of the money' is relevant and applicable to both the producer and processor/exporter due to the risk that the spot market at time of physical supply may be higher or lower than the forward contract and price entered into.	<ul style="list-style-type: none"> Price certainty, not trying to beat the market – fixed price contracts give both parties price (profit margin) certainty, enabling effective financial planning, budgeting and potential to secure finance. Processor and exporter having commitments backed Formula based pricing Producer understanding their cost of production Develop value chain partnerships and relationships 	Stretch, 2015 Beef Central 2016 Industry Source
3	Obtaining sufficient forward price premium for producers to commit to supply 'out of season' lamb.	To provide sufficient price premium, incentive and confidence for producers to supply sufficient volumes of out of season lamb supply.	<ul style="list-style-type: none"> For processors/exporters and their end customers to provide forward pricing contracts. Assisting with cost of production analyses Producer alliances to supply out of season lamb. To supply lamb for premium and branded products 	Stretch, 2015 Industry Source
4	Major retailers using wholesale procurement models that operate in WA.	The major retailers purchase lamb and sheep products direct from lamb/sheep processors and do not enter into direct supply arrangements with producers.	<ul style="list-style-type: none"> Producer groups to explore and engage with the major retailers to determine if forward supply arrangements direct with major producers/groups. 	Industry Source
5	Inability or lack of commitment by producer to supply the volume of sheep to the contracted specification	Situation whereby a producer due to many factors including but not limited to; insufficient management capability, disease and animal health challenges, seasonal factors causing lack of available nutrition sources, sale or substitution of sheep to higher more lucrative competitive markets.	<ul style="list-style-type: none"> Limit contractual commitment. Adopt conservative approach to contracts and agreements. Develop counter party checklist to determine suitability for entering into contractual agreements. Enforceable contracts to contain independent dispute resolution and arbitration clauses 	Stretch, 2015 Industry Source

Ref	Issue	Description/ Context	Potential Solution(s)	Mentioned in
5	Lack of operating derivatives market for risk management, price discovery and forward market indicators.	No operational derivatives market to assist sheep industry participants to manage price risk and guide future forward price discovery over a 12-month period.	<ul style="list-style-type: none"> Promote the Riemann 'OTC' products for risk management and price discovery Promote market information on Eastern states and New Zealand processor forward prices. Retail and wholesale analysis with MLA carcass calculator to understand margins along the supply chain. 	Stretch, 2015 Industry Source
6	Currency exchange rate risk at time of physical sale of sheep meat products.	Situation whereby at time of physical sale of sheep, meat products, the currency exchange rate influences the price received in Australia. This is relevant to sales of sheep, meat products, to export markets.	<ul style="list-style-type: none"> FEC (Forward Exchange Contracts) contracts with financial institutions to manage currency exchange rate changes. Risk sharing price formula arrangements between contract participants. 	Industry Source
7	Seasonality, feed supply and climatic variability affecting delivery times of sheep.	Situation whereby seasonal and climatic conditions impact the sheep, meat sale process. Impacts could include the timing of sheep delivery, condition and specifications, quantity available, cost of production.	<ul style="list-style-type: none"> Limit contractual commitment to certain supply volume and adopt conservative approach. Producer to consider risk management options to manage these events. Contract clause permitting transfer of contract or roll over if sale of stock affected due to adverse seasonal conditions. 	Duddy, 2017 Young, 2016 Industry Source
8	Price of grain, supplement feeding and livestock husbandry inputs.	Situation whereby, the costs associated with supplying sheep that meet volume, specification and quality requirements is impacted by increases in the cost of grain and supplement husbandry inputs.	<ul style="list-style-type: none"> Forward contract grain and ration inputs. Undertake sensitivity analysis based on feed input costs 	Duddy, 2017 Industry Source
9	Volatility of markets due to external events.	External events and activities that may impact the sheep market at any time in the future thus creating risk for forward contracts. These events include; political and policy changes, animal rights activism, trade access changes, biosecurity challenges, disease outbreaks, food safety challenges, climate change and disruption to supply chain logistics.	<ul style="list-style-type: none"> Limit contractual commitment to certain supply volume and adopt conservative approach. Force Majeure clauses in contract. 	Stretch, 2017 Industry Source

Ref	Issue	Description/ Context	Potential Solution(s)	Mentioned in
10	Timing and dates of fixed price forward contracts	Situation whereby, fixed price contracts are only attractive to processors during seasons when supply is limited.	<ul style="list-style-type: none"> • Provide sufficient benefits of forward supply for processors/exporters and incentives for producers for year-round contracts. • Processors/exporters secure back-back contracts with their customers • Promote value chain relationships for all year-round supply with producer groups • Encourage the development of finance products based on forward contracts 	Stretch, 2015
11	Inability for processor/exporter to take delivery of forward contracted sheep on specified dates.	Situation whereby the processor/exporter due any number of factors including but not limited to; insufficient procurement planning, processing plant operational challenges including staff availability, cash flow, machinery/ship breakdowns, animal and health compliance challenges, sourcing of stock at lower prices on spot and alternative markets, disruption or cancellation or product specification changes of orders to end customers.	<ul style="list-style-type: none"> • Contract clauses to cater for these circumstances. • Inclusion of roll over of contract provision subject to agreement • Dispute resolution and arbitration process • Force Majeure clauses in contract design 	Industry Source
12	Payment risk by counter party due to insolvency, legal action or financial cash flow challenges.	Situation whereby, the parties to the contract may not receive payment as and when due. This could be due to contract disputes, financial events, counter party insolvency	<ul style="list-style-type: none"> • Credit insurance • Credit check, banker opinion • Counter party due diligence checklist • Dispute resolution and arbitration 	Industry Source
13	Having effective independent and objective contract dispute resolution and arbitration process.	Situation whereby, the contracting parties may have disputes or challenges surrounding their contractual agreements due many factors.	<ul style="list-style-type: none"> • Effective contract and agreement design, rules and documentation will assist in managing this issue. • An independent dispute resolution and arbitration service will assist to mitigate this issue if they arise. Examples, include, Grain Trade Australia and Australian Disputes Centre 	Grain Trade Australia Stretch, 2015 Industry Source
14	Lower cash prices if increased forward contracts are used.	The theory that cash prices would be impacted negatively due to the removal of a buyer (demand) from the spot market	<ul style="list-style-type: none"> • Need to consider that supply has also been removed from the spot market. • Focus on profit margin not on price. • Focus on longer term alignment benefits for producer, processor and customer. • Forward contracts would/ should never be 100% of the market. 	Emmett, 1992 Industry Source

Ref	Issue	Description/ Context	Potential Solution(s)	Mentioned in
15	Lack of derivatives and liquidity (low sales numbers and trades)	Low sales volumes and trades and private sales direct to processors makes establishing a market indicator price for lamb or forward price exchange traded contracts or options difficult in WA.	<ul style="list-style-type: none"> • Use licensed brokers to aggregate, educate and promote trading in 'OTC' Riemann products • Increase education, training and information availability. • Use trial examples of successful outcomes not just beating the market. 	Riemann Industry Source Kang and Mahajan, 2006 Stretch, 2015

5. BEST PRACTICE PRO FORMA FOR SHEEP

This section provides an outline of the key factors and considerations recommended for inclusion in any standardised forward contract for the sheep industry, based on the findings from the above chapters. An example of a potential standardised forward contract form for the sheep industry was also developed as part of this study and is provided separately.

5.1 FORWARD CONTRACT CHECKLIST

Based on a review of forward contracts in other industries and stakeholder consultation, the following is a list of the primary needs and requirements/ checklist considered in the development of the best practice and effective forward contracts for sheep, and is broken into contextual information, specific content and industry performance benchmarking data (which does not fall under the contract).

5.1.1 Contextual

- Simplicity; plain English and easy to understand for both parties.
- Recommend counter party due diligence and assessment for risk of non-payment assessment.
- Contracts should reward producer commitment and contain risk/reward clauses so both parties are protected by spot market moves at time of physical supply. Formula based pricing allows this – the formula mechanism allows for parties to share downside and upside at time of physical supply.
- Incentive rewards shared between producer and processor if certain results are achieved.
- Independent dispute resolution and arbitration service.
- Include no retrospective clauses.
- Be an enforceable contract but clause to allow for flexibility due to seasonal impacts.
- Associated supplier handbook or manual.

5.1.2 Specific Content

- General:
 - Quality assurance, sustainability, ethical and food safety standards.
 - Organisation offering contracts specifying the contract offer and closing period dates.
- Pricing, Payment and Penalty:
 - Minimum price with formula based on agreed market index.
 - Transparent and objective market reference indicators (for formula price calculations).
 - Skin pricing formula to be clearly specified.
 - Quality and quantity requirements clearly specified.
 - Payment terms clearly specified.
 - Highlighted clauses of risk and penalties associated with forward contract enforceability.
 - Objective data and statistics provided to producer following processing.
- Closures and Cancellations:
 - Force Majeure clauses.
 - Wash out clauses including roll over provision due to production challenges from seasonal impacts.

- Risk Management:
 - Producer capability assessment to supply the specified quantity, quality and fulfil the agreement with the purchaser.
 - Risk management plan is developed by producers for non-delivery under contract by producers due to adverse seasonal conditions, higher markets or substitution are challenges.
 - Producer feed cost sensitivity analysis.
 - Producer having reasonable understanding of their cost of production.
 - Provision of livestock feedback and information to producer.

Case Study Example – Dairy Industry Learning

The following core findings and recommendations arising from the Australian Competition and Consumer Processors and farmers should enter into written contracts for milk supply that are signed by the farmer.

- All processors should simplify their contracts where possible, including by minimising the number of documents and clearly indicating which documents contain terms and conditions of milk supply.
- Milk supply contracts should not include terms which unreasonably restrict farmers from switching between processors.
- The industry should establish a process whereby an independent body can administer mediation and act as a binding arbitrator or expert in relation to contractual disputes between farmers and processors.
- Farmers should ensure they have properly considered the legal and financial implications of contracts with processors.
- Processors should publish information identifying how their pricing offers apply to individual farm production characteristics to enable better farm income forecasts.
- The Voluntary Dairy Code should be strengthened Notwithstanding Recommendation 8, the Voluntary Code will continue to operate for at least the short-to-medium term.
- processors to include a comprehensive dispute resolution process in their milk supply agreements, including where this relates to compliance with the Voluntary Code itself.
- processors to provide timely price and other contract information before requiring farmers to make a decision about renewing a contract.
- with regard to section 6 of the Voluntary Code, removal of the incumbent processor's first right of refusal regarding a farmer's supply of milk to an alternative processor.
- A mandatory code of conduct within the Competition and Consumer Act 2010 should be considered for the dairy industry.

5.2 WASHING OUT CONTRACTS

The information in this section is provided for the purpose of defining washing out clauses in a contract as some industry participants may seek these clauses in the future. Wash out clauses are not put forward for inclusion in the (enforceable) WA sheep forward contract template as parties to any sheep contract should conservatively and proactively manage risks relating to production and processing. Force majeure and dispute resolution clauses are intended to provide additional confidence to contracting parties in the event of issues arising under the contract.

Washing out a contract refers to the process where one party of the contract makes good their position when they are unable to meet their contract commitment. For example, in a grain marketing context this is related to growers

who are not able to deliver grain that has been forward sold due to production failure (but traders can also be forced to washout contracts).

When growers do not produce enough grain to meet a forward contract commitment they have two options:

- They can purchase the quantity and grade of grain required and deliver it to meet their obligations. In this case they avoid having to washout the contract but will have to carry any loss between the purchase price of the replacement grain and the price they receive under the contract.
- If there is no grain available for purchase they can negotiate a cash settlement with the other party (the buyer) to make good their position. The washout cost would be the difference between the original contract price and the applicable market value for the grain at the time of the washout. Applicable market value is usually based on the traded price for grain in a market relevant to the contract. If a market value cannot be established (due to the illiquid nature of some grain markets) the buyer will calculate a theoretical market price and washout cost at which they would agree to 'forgive' the seller for being unable to fulfill their contract commitment.

The buyer may offer the seller some other options, the most common of which are, extension of delivery period or allow a rollover of the contract to the next crop year. The buyer is under no obligation to offer any of these options to the grower (GRDC, 2017).

6. RECOMMENDATIONS

Following the extensive stakeholder consultation and literature review together with the completion of the agricultural commodity case studies, there are a number of recommendations and next steps for the consideration by the Department of Primary Industries and Regional Development for the WA sheep industry, these are grouped into implementation activities for this project, and broader recommendations for the WA Sheep Leadership Bodies as the major overarching organisation representing the WA sheep supply chain and the wider regulatory and industry self-regulation.

6.1 IMPLEMENTATION ACTIVITIES FOR THIS PROJECT

- Deliberate and clear ongoing industry engagement, including:
 - Supporting specific 'physical supply chain' projects with sheep production groups/ major producers to develop aggregated supply to engage with downstream processing sector to implement forward supply agreements (>3 months) for out of season sheep during the months November to July.
 - Support and facilitation of grower alliance groups
 - Support and facilitation of industry innovation day(s)
- Support the development and implementation of trial 'AuctionsPlus' forward contract sales for slaughter lamb delivery out to 6 months with forward contract template information and best practice learnings obtained through this study.
- Support the development of new technology and market information and trading platforms for the sheep industry (e.g. similar to Clear Grain, Agridigital, SpoutX and StockX-New Zealand).
- Facilitate and support the development and promotion of alternative longer-term sheep breeder finance products by banks and financial providers.

6.2 WA SHEEP INDUSTRY LEADERSHIP BODIES

- Advocate and promote:
 - Value chain alignment, producer to consumer
 - The adoption of physical forward contract agreements >3 months.
 - With the banking and financial services sector for the creation of livestock breeder finance products.
 - Nationally for the training and education of OTC Riemann derivative products.
 - The development of additional specific live export market information prices per category (MLA and LiveCorp).
 - The development of trading platforms in the WA sheep industry (e.g. similar to Clear Grain, Agridigital)
- Develop an alliance with an independent dispute resolution and arbitration service for forward contracts for example. Grain Trade Australia, Australia Disputes Centre).
- Develop an alliance with an Australian agricultural industry body that has successfully developed a framework for implementing and maintaining a comprehensive contracting system. For example, Grain Trade Australia.
- Increase industry governance standards and perception through appointment of an independent Chair.

6.3 REGULATION

DPIRD and WA Government to consider:

- Advocating for legislation for greater supply chain information through legislation or voluntary industry similar to the USDA Livestock Mandatory Price Reporting Act.
- Engage with Grain Trade Australia (GTA) or other industry body (for example dairy AIDC) to work with and support the WA sheep industry develop a robust dispute resolution system and contracting framework.
- Advocating for the delivery of a minimum industry standard Code of Conduct with regards to agents and other key stakeholders.

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APPENDIX A: DERIVATIVES AND FORWARD PRICING

DERIVATIVES CATEGORIES AND USE

Derivative products can be either traded in a centralised marketplace, referred to as **exchange traded** derivatives or **over the counter (OTC)** derivatives market.

Exchange trade products include futures, whereby the contract specifications are highly standardized and pre-determined by the exchange. Examples of major commodity exchanges are the Chicago Board of Trade (CBOT) and Chicago Mercantile Exchange (CME), London Metals Exchange (LME).

Alternatively, OTC derivative products are traded between banks and financial institutions whereby trading is done between participants via electronic communication outside of a centralized marketplace exchange.

The types of derivatives traded in the OTC market include options, forwards and swaps. These derivatives are typically customised and flexible in their design to suit the specific needs of the parties to the deal. Across the OTC commodity derivatives market, the majority of all contracts are confirmed electronically via confirmation matching platforms.

Whilst it is true that derivatives are and can be used as instruments for speculation, the bulk of activity in commodity derivatives is for participants to shift and mitigate market risk. The use of derivatives, in place of, or in conjunction with, an underlying physical commodity asset, allows the participant to increase or decrease the risk of trading or holding the asset.

DERIVATIVE PRODUCT TYPES

There are many types of derivatives traded in the global markets however, the following four types of derivatives are the most commonly used:

- **Futures:** are standardized exchange traded contracts for participants that lodge deposits or margins with an exchange to buy or sell commodities and are legally binding agreements between a buyer and seller. The exchange provides a central execution, clearing and settlement function. Although physically delivery is technically possible, the majority of futures positions are closed out prior to contract expiry.
- **Swaps:** A swap is a bilateral agreement to exchange cash flows at specified intervals (payment dates) during the agreed-upon life of the transaction (maturity or tenor). Entering a swap typically does not require the payment of a fee. Swaps allow participants to exchange or swap their commodity price exposures and corresponding cash flows, which are dependent on the price of the underlying commodity. The most common kind of swap in commodities is the 'fixed-floating' swap. Typically, swaps are cash settled whereby no physical delivery of the physical commodity occurs.
- **Forward Contracts:** are customized contracts where two private parties agree to trade a particular asset with each other at an agreed specific price and time in the future. Forward contracts are traded privately OTC, not an exchange. The main differentiating feature between futures and forward contracts is that futures are publicly traded on an exchange i.e. CBOT while forward contracts are privately traded OTC. Furthermore, a forward is a bilateral agreement to exchange an asset or cash flows at a specified future settlement date at a *forward price* agreed on the trade date. One party to the forward is the buyer (long), who agrees to pay the forward price on the settlement date; the other is the seller (short), who agrees to receive the forward price. Entering a forward contract typically does not require the payment of a fee.

Commodity forwards can be *cash settled*, which means one party pays the other the difference between the forward price and the price prevailing on the settlement date, multiplied by the agreed quantity. Or they can be *physically settled*, which means that on the settlement date one party pays the forward price for the agreed quantity and the other party delivers the agreed quantity.

- **Options:** Are contracts that give the buyer the right, but not the obligation, to buy or sell an asset at a specified time at a predetermined price. The buyer of the option pays to the seller a sum of money known as *premium*.

An option is an agreement that gives the buyer, who pays a fee (*premium*), the right—but not the obligation—to buy or sell a specified amount of an underlying asset at an agreed upon price (*strike or exercise price*) on or until the expiration of the contract (*expiry*). A *call* option is an option to buy, and a *put* option is an option to sell.

HEDGING, DERIVATIVES AND MARKET INFORMATION

Derivatives are not currently a feature of the WA or global sheep industry. However, it is considered important to understand the role these tools have in other global agricultural commodity markets including beef cattle and pigs, as this provides context and background to some of the core challenges, risks and barriers that face the relatively small, isolated and export oriented WA sheep industry.

Riemann Agricultural Services (Riemann) is an Australian company that creates and designs tradeable financial and non-financial products for the agricultural markets. Since 2012 Riemann has been an important contributor to the Australian agricultural industry's goal of enabling agricultural market participants (growers, producers and others in the agriculture value chain) to have access to forward price transparency and relevant risk management products to best manage their forward agricultural price risk exposures.

The most successful example of use and adoption of Riemann 'OTC' derivatives is the Australian wool industry, whereby up to 70 market participants along the wool supply chain use Riemann 'OTC' products for risk management and trading purposes.

Mercari (Financial and Energy Exchange Group) operates licensed and regulated electronic markets for over the counter (OTC) Riemann derivative products in Australia. Mercari holds both an Australian Market License and Australian Financial Services License.

Riemann licensed financial products are available in Australia for trade on electronic regulated platforms which operate under an Australian Market License (Mercari) that allows for the offering and trading of these agricultural financial risk management products.

Riemann, since October 2016, has offered financial risk management products to the Australian livestock industry including the Riemann Trade Lamb (NTLI) 'OTC Forwards' and 'OTC Options' that are cash settled against the Meat & Livestock Australia (MLA) National Trade Lamb Indicator (NTLI) with maturity dates out for two years, set against key national sheep saleyard selling days.

The Riemann products are broad based risk management products that can be used for hedging and trading Australian trade lambs, including option contracts designed to provide efficient hedging strategies. Mercari provide the trading platform which holds an Australian Market License under the Corporations Act and is regulated by the Australian Securities and Investments Commission (ASIC). Promoting real-time price discovery and transparency, Mercari trading system supports the hedging and trading needs of the livestock industry.

Some examples are provided below:

- Financial Product – Riemann Trade Lamb (NTLI) OTC Forwards:
 - An OTC cash settled forward based on the MLA NTLI National Sheep and Lamb Indicator Report produced every Friday in c/kg cwt.
 - Minimum Size: 2,000 Kgs (equates to 100 lambs at carcass weight average of 20kg).
 - Pricing Unit: A\$ Cents per Kg (cwt).
 - Wholesale Clients only (Corporations Act 2001 s761G).
- Financial Product – Riemann Trade Lamb NTLI OTC Options:
 - An OTC cash settled option based on the MLA NTLI Daily Summary Report produced every Friday in c/kg cwt.
 - Wholesale Clients only (Corporations Act 2001 s761G).

Based on the research and stakeholder consultation undertaken by the contractor, there is currently and historically no utilisation of the Riemann sheep OTC derivative products. This is not due to the products being inferior or anyway not suitable for the sheep industry but a function of several complex industry reasons and causes, as outlined below.

The uptake and adoption by the WA sheep industry of the Riemann Risk Management Financial OTC derivatives products in the opinion of the contractor, based on research and stakeholder consultation undertaken is not expected in the short to medium term due to:

- Misunderstanding, misconception and distrust of derivatives amongst sheep industry participants.
- Fear of those financial speculators.
- Requirement for intensive and ongoing education, training and simulation of using derivative products.
- Requirement for banks, financial institutions, processors and major stock firms to lead and participate in the OTC derivative trade to reduce counter party risk and satisfy the wholesale client test.
- Counterparty challenges when dealing direct with livestock producer participants.
- Australia wide participation is required to provide sufficient market scale, volume and liquidity.
- Brokers and aggregators in WA (as used in the grain industry) with an Australian Financial Services License (AFSL) to promote/execute trades and to satisfy wholesale client test.

The importance of derivative markets in agricultural commodity markets is supported by Kang and Mahajan (2006) who state that, the fundamental role of a derivative markets is to facilitate risk sharing and price discovery. Commodity futures markets remain the most efficient price formation mechanisms, providing reliable benchmarks for physical trade. Because a wide group of participants can use the market, each participant brings into the price formation process the information possessed on future demand and supply conditions. Price discovery and risk management are two of the most important functions of the derivatives market.

Whilst the use of derivatives in agricultural commodity markets is viewed by some industry observers as speculation and manipulation, Kang and Mahajan (2006) argue training and capacity building is an essential and important aspect to the increased understanding, use and adoption of using alternative tools for financial risk management and price discovery. An important barrier to adopting and using these market instruments is a general lack of familiarity with their strategic uses.

Another critical element in all agricultural commodity markets is information, data and statistics. This provides the basis for informed decision making and can assist supply chain participants with future business and investment planning and marketing strategies. The USA livestock industry (cattle and pigs) have the distinct advantage for overcoming future price visibility and price discovery, due to the presence of the livestock reporting legislation and an operating local derivatives market. Although, it needs to be acknowledged that the scale and maturity of these two USA livestock industries is significantly different compared to that of the WA sheep industry.

The USDA enacted the *Livestock Mandatory Price Reporting Act in 1999*, which required meat packers (processors) to disclose price and volume information for cattle, swine and lamb. There is a rationale for having government involved in the collection and dissemination of market prices since the benefits flow throughout the entire economy and so can be considered a “public good”. This is especially the case for commodities which do not have a futures market and there is little else available to provide price discovery. The hog (pig) market in Canada operates in a unique way in that price discovery takes place in the U.S. While the Canadian cattle markets are based on U.S. futures and cash prices, there is still a “basis” that regulates the supply and demand in Canada. The hog market does not use a basis, but rather Canadian hog prices are calculated using a formula based on the prices from many different USDA daily cash hog reports. The formula adjusts for currency, imperial to metric, the different dressing percentages and a grading premium. Every few years, the formula is reviewed by producers and packers and adjustments may be made based on negotiations.

The wheat market in Canada is tied to the three U.S. futures markets. Beans, peas, lentils, and canary seed do not have a futures market or even a viable cross hedge. These commodities are traded flat. Price discovery includes transactions between Canadian processors and bids (both spot and forward) available to farmers. Market prices

are available for clients from many private firms that specialize in market information for pulses and special crops. Flaxseed is also traded in a similar fashion with little in the way of price discovery.

One innovative price discovery project developed by Gibson Capital is the Feed Pea Benchmark published bi-weekly by the Alberta Pulse Growers. Feed peas are used primarily in hog rations and their nutritional value can be estimated using least cost formulation. This is an example of relative valuation, where the value of feed peas is derived from the ingredients in a typical hog grower ration. The ingredient prices for the ration such as barley, feed wheat, corn, canola meal, soy meal, canola oil, lysine, among others, are determined by brokers active in those markets and the value of feed peas is calculated using least cost feed formulation software.

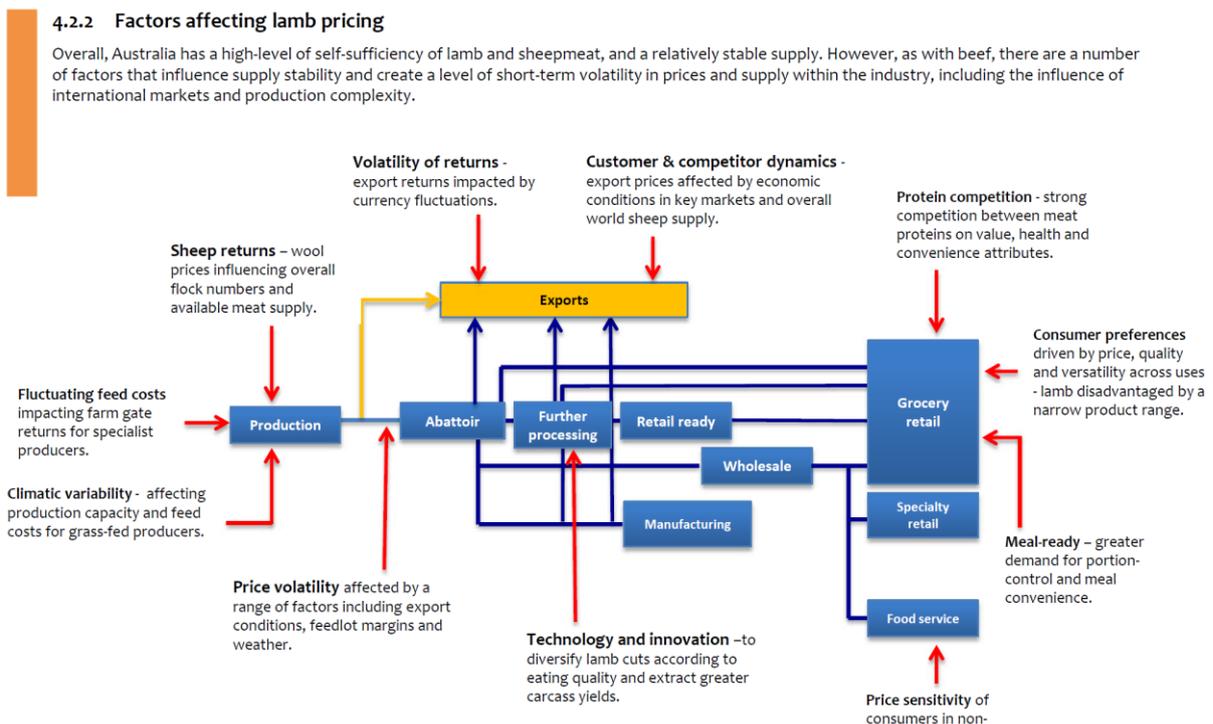
ADDITIONAL PRICING INFORMATION

The following information is related to pricing information for Australian lamb including the issue of transparency along the supply chain.

In this context of the sheep industry study, transparency generally refers to a state where all market participants have access to information on the prices achieved and costs incurred at each point along the supply chain – from farmgate through to retail – as well as the market conditions that influence pricing. Economic theory holds that markets are less effective when there is limited information on which to base supply and demand decisions. Perfect information is the ideal situation where all buyers and sellers have all the information they require to effectively manage supply and demand and determine price.

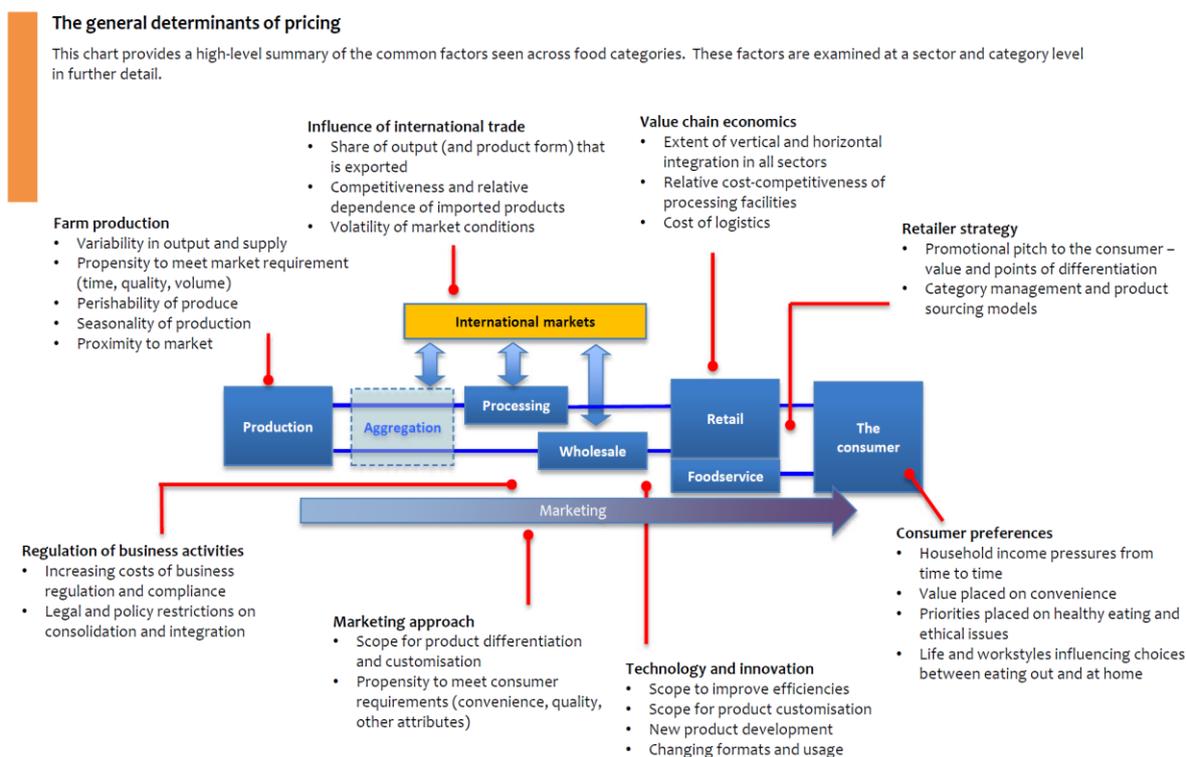
In most markets there is less than perfect information. In fact, information asymmetry – that is when one participant in a market has less information than another – is more the norm and this can lead to distinct disadvantages for stakeholders who may already have limited market power, such as primary producers. In the food industry the link between retail and farmgate price is not always obvious, particularly where primary produce is substantially transformed post-farmgate. In many instances price signals that can inform a primary producer about consumer demand for specific attributes or quality issues are less than effective. This reduces market efficiency and can add to supply chain costs. Mistrust is also heightened where information about costs and prices along supply chains is lacking. Resulting in a perception that ‘someone’ along the value chain is taking more than their ‘fair share’ of value, particularly when the relationship between the prices consumers pay and the returns to primary producers is not clear.

Figure A.1. Factors Affecting Lamb Pricing in Australia



Source: Spencer (2016).

Figure A.2. General Determinants of Pricing for Australian Agri-Food Products



Source: Spencer (2016).

Barriers to Greater Transparency

Barriers to greater transparency include, but are not limited to:

- **Commercial interests:** Greater transparency is not in the interests of everyone. In fact, information asymmetry is often an advantage for supply chain participants. Those who have a greater understanding of market conditions and supply chain margins can leverage this superior knowledge in their transactions with supply chain partners. Often this superior knowledge is the result of significant investment and/or market power, and there is little incentive to change the status quo.
- **Investment cost:** Food supply chains are complex with many suppliers, multiple channels to consumer and product variants. The investment required to develop and maintain systems to collect, analyse and distribute data that is comprehensive and timely is significant. Increasingly this investment has fallen to industry organisations with varying abilities to resource the activity.
- **Enforceability:** Regulations that demand transparency are difficult to enforce since they can often be avoided by supply chain participants. As industries have been deregulated in many cases, market information provision has passed to industry organisations. As a result, there is even less ability to compel supply chain participants to submit information without the legislated powers of the ABS or other regulatory bodies.
- **Ability to collaborate:** The propensity of supply chain participants to collaborate in the sharing of cost and price data is highly variable, both between and within food supply chains. While in general primary producers of similar products may be willing to share data, the collection may be onerous. On the other hand, wholesalers and retailers who are in direct competition could access the data but may be unwilling or even precluded from sharing it. For example, the ACCC has recently taken action against petrol retailers for sharing close to real time data on the grounds that it facilitates price collusion.

Source: Price Discovery in Canadian Crops and Livestock: (<http://www.gibsoncapital.ca/articles/price-discovery.html>).

Riemann Agricultural Financial Products and Mercari

Source: <http://www.riemann.com.au/about/>

Source: <http://www.mercari.com.au/>

APPENDIX B: FINDINGS FROM STAKEHOLDER CONSULTATION

Below is a summary in point form of key and relevant information obtained via face-to-face and phone meetings held with key WA sheep industry stakeholders during August 2017. The meetings were held on the basis to better understand the key challenges affecting the WA sheep sector generally, and specifically the barriers that require consideration and/or addressing for the future development and implementation of sustainable forward supply contracts in the WA sheep meat industry.

Only a summary of key outcomes across stakeholders is provided, as it was provided on a commercial in confidence and anonymity basis.

The key points, challenges, barriers and considerations for the future development of forward supply contracts in the WA sheep industry, as raised by industry stakeholders engaged, include:

- Having the major retailers operating on wholesale procurement model in WA prevents direct supply relationships with producers (noting previously in WA, major retailers operated direct supply relationships with producers).
- Back to back medium-term contracts by processors with end customers is possible, however, contracts beyond 6 months are difficult and present much risk for processor and the end customer retailer (Note: New Zealand sheep industry example where the 3-year forward 'Silere' lamb contract was reduced to within 6 months and the major meat processor has since exited the joint venture with the Silere brand).
- A retail price reference indicator for sheep and lamb meat product prices could be a useful reference for forward contracts however, lamb products are sometimes used as loss leaders to induce and attract retail customers to a retail supermarket therefore potentially distorting the true retail market value.
- Contracts for producers to share risk and reward in downstream retail margins is complex, as major retailers use lamb/sheep products as 'loss leaders' (refer to above point).
- Major retailers research reveals that lamb purchases result in up to an additional four (4) x value of purchases on other products whilst in the retail store.
- Delivery by producers of physical stock supply volumes under forward contracts is critical. Producers must have contingency plans or adopt a conservative approach to contracting for the physical delivery of forward supply contracted volumes.
- Committing only a percentage of forward production is required by producers for prudent risk management to acknowledge their production risk.
- Specific circumstances suit forward contracts but processors typically do not wish to take the lead in a forward contract innovation and implementation of forward contract business model in WA.
- Forward contracts beyond 3 months is possible with formula based pricing in sharing of risk/reward, between producer and processor/purchaser. Clauses in the contract are required to account for the actual delivery date spot market price moves both up and down.
- Forward contracts based on formula, index reference and grid are possible.
- The light airfreight and live export lamb market is having an impact on availability and profitability of lambs for feedlotting and further finishing.
- Low overall sheep flock number are having an impact on sheep availability for backgrounding and feedlotting.
- Forward contract simplicity is a critical element.
- Livestock finance will be available through the supply chain where contracts are in place with strong counter parties and banks would generally look favorably on contracts to provide certainty over delivery and/or price.

- Producers knowing their true cost of production for sheep is an issue for price discovery and entering into forward contracts.
- The provision of longer term financial products to purchase sheep breeders combined with forward offtake agreements for lambs would be a welcome development for producers and the WA sheep supply chain.
- Sheep and lamb market differentiation is critical and seeking RSPCA approval may assist customer marketing.
- Education, training and promotion is key to the understanding and adoption of financial derivative, Riemann 'OTC' products in the WA sheep supply chain.
- Overcoming change and establishing united industry leadership is a significant issue in the WA sheep industry.

APPENDIX C: CASE STUDIES

AGRICULTURAL SECTOR EXAMPLES OF FORWARD SUPPLY CONTRACTS

Seven (7) agriculture sub-sectors were examined and analysed to provide case study examples of forward supply arrangements and contracts. These sub-sectors include a mixture of the presence of operational derivative markets and forward supply chain contracts that are based solely on physical delivery of product, whereby specific contract arrangement terms typically cover volume, quality, assurance standards, price and delivery times.

The specific sectors researched to examine forward contract and supply chain arrangements were:

- New Zealand Sheep
- Australian Beef Cattle
- Australian Pigs
- Australian Dairy
- Australian Grains (Wheat)
- Australian Horticulture (Vegetables)
- USA Red Meat

Summary information obtained through the literature review on the use of alternative marketing arrangements in the USA Red Meat sector is provided as context and lessons on the advantages of spot and forward marketing arrangements.

In addition to the sub-sectors above, the innovative and number one Australian online livestock sales platform provider, AuctionsPlus, was assessed and engaged for its potential and relevance to facilitate greater use and adoption of forward supply arrangements in the WA sheep sector across all classes of sheep, this platform could assist with price discovery and increase price transparency. AuctionsPlus have expressed an interest in the continued development of facilitating and supporting forward sales (> 3 months) of all classes of sheep in WA, not just reseller lambs.

New Zealand Sheep

Key Learnings

- Sheep transactions predominantly based on physical spot market between 1 to 3 months.
- Forward contracts are offered to producers for higher value premium branded products between 2 to 6 months out.
- No live export of sheep permitted from New Zealand.
- Producers and processors both fear of loss if spot market deviates significantly at time of physical supply.
- New Zealand sheep industry is export market dominant with over 90% of sheep processed for export markets.
- SILERE branded lamb forward contracts reduced from 3 years to 6 months and less due to processors bearing greatest price risk.
- Contracts should reward producer commitment and contain risk/ reward clauses so both parties are protected by spot market moves at time of physical supply, formula based pricing allows this.
- There is no operational derivatives market in the New Zealand sheep industry.

Key Industry Information

The sheep industry is a significant contributor in terms of economic value, supply chain jobs and export value to the New agricultural sector and wider economy. New Zealand is the world's 2nd largest exporter of sheep meat, and is the world's 3rd largest producer of lamb and mutton (after China and Australia).

- Over the past few decades, profitability in the New Zealand sheep sector has been in decline, with an over-reliance on volatile commodity markets and a lack of product differentiation. This has resulted in a significant drop in the national sheep flock, as farmers have moved to other land uses.
- NZ has a European Union (EU) 228,254 tonnes carcass weight equivalent quota allocation, while Australia has just 19,186 tonnes carcass weight equivalent.
- As of June 2016, there were an estimated 27 million head of sheep in New Zealand, with the sheep flock distribution spread equally between the North and South islands.
- In 2016, New Zealand exported over 90% of total sheep production processed.
- In 2016, New Zealand the total number of sheep processed was 24million head with the average lamb carcass weight 18.3kg.
- There is no live export of sheep permitted from New Zealand under the Government of New Zealand regulations.
- The peak season for New Zealand sheep supply is from December to May.
- The major sheep processing companies are Silver Fern Farms (SFF) Co-Operative Limited (50% owned by China based Shanghai Maling), Alliance Group Limited, ANZCO Foods, Talleys Group Limited and additional smaller sheep meat processing companies including Hawkes Bay Meat Company and BlueSky Meats.
- New Zealand Sheep Industry Transformation Project (NZSTX) was launched in September 2010 as a Primary Growth Partnership (PGP) programme between the New Zealand Government, Ministry for Primary Industries (MPI) and The New Zealand Merino Company Limited (NZM).
 - PGP -Project 2: focus was meat and co-products – transforming demand for sheep meat.
- The 'SILERE' brand was created to develop premium high value lamb products.
 - SFF offers SILERE as part of its range of premium red meat products alongside Reserve beef, venison and other high quality lamb cuts.

- The Alpine Origin Merino Limited (AOML) joint venture vehicle established with SFF initially proved to be a successful vehicle for the marketing of SILERE product.

Sale Transactions

The sheep transacted in New Zealand are predominantly sold on spot market basis via consignment from the producer's farm, whereby the processor representative or third-party drafter, agent will physically inspect and draft the sheep and provide the schedule pricing terms and conditions to the farmer for delivery to a specified processing location, typically within one month of inspection. This on farm sale transaction may or may not involve a livestock agent drafter depending on the market and producer preference. In addition, sheep are sold in New Zealand at livestock saleyards through the public 'open cry' auction system conducted by livestock agents or through an online livestock sales platform.

The sheep processing sector in New Zealand predominantly seeks to attract booking commitments from producers who are often shareholders in the Co-Operatives or from third party agents and brokers. The pricing system is typically based on applicable schedule rates at time of supply.

Forward Contracts

In general, the New Zealand sheep industry does not have a well-developed and consistent physical forward contracting system beyond the short-term range between 1 and 4 months that involve producers direct to the processor. However, there are some longer-term forward contracts up to six months offered by sheep processors to attract the required supply and specification of sheep for certain higher premium branded product markets.

There is also some payment innovation offered by a Co-Operative processor to assist their shareholder farmers with seasonal cash flow requirements.

The issue of future price volatility and poor visibility for longer term forward contracts in the absence of an operational derivatives market is evident in the New Zealand sheep industry. Supply forward contracts for lambs qualifying for the value-add SILERE branding was introduced following the launch of the NZSTX and creation of the SILERE brand. While initial contract volumes were small, an important step was made towards a more integrated supply chain. Initially the forward contracts were signed for three years, however, recently the forward contracting period has been reduced to between three and six months as a result of the volatility of sheep meat prices and clear lack of pricing protection for the processor out beyond six months (i.e. processor is bearing price risk for longer dated contracts) (PwC, 2014). The processor faces the greatest loss due to accepting long term price risk without back to back arrangements. A 12-month maximum contract cycle is probably best matched to the sheep industry structure and production/marketing cycle. Retailers typically plan for three to six months procurement arrangements for lamb product.

In 2016, SFF exited the SILERE joint venture with the New Zealand Merino Company (NZM), with SFF seeking to refocus on their own range of premium market SFF brands, sheep processing efficiencies and further developing markets and relationships with Chinese customers.

SILERE Forward 3-year contracts to producers were based on minimum fixed price per kilogram for delivered lamb to specifications.

An example of sheep contract conditions offered by a New Zealand processor provided below.

**1. New seasons
lamb only**

2. Price **NZ\$6.20 per kg** (AUD \$5.80/kg exchange rate indicative as at October 2017)

3. Weight range **20 - 26 kg carcass weight**

4. Timing December to May
Farmer chooses Dates

- 5. Numbers** Minimum 50 per line
Must be separate from others on that day
May be restrictions in any one month
- 6. Grading** Y, P and T grades acceptable
Cutters minus 50 cents per kg
- 7. Who** Regular suppliers
Contracts must be entered under supplier's names only.
- 8. Other Numbers** Suppliers MUST contract AND supply two other animals (lamb only) for every one (1) in contract
- 9. Penalties** 10 cents/kg penalty across the whole line for every 10% reduction in the number per line that don't meet all the conditions (including weight and contracted total)
- 10. Payment** No money withheld, each line treated separately
- 11. Closing date** Friday 3rd November 2017.
Confirmation on contract information

Other contract terms and conditions include:

- Stock is paid for in full, including all premiums, 14 days from slaughter date. No money is retained by the Company at any time.
- Cartage is to be paid by purchaser.
- To obtain a confirmed contract, suppliers will be required to complete Farm Assurance details.
- All livestock must have been shorn for at least three weeks before slaughter.

Dispute Resolution and Arbitration Process

No formal dispute resolution and arbitration process is in place. Disputes are negotiated directly between producer, processor/ retailer with possibly a third party Del Credere Livestock Agent (e.g., PGG Wrightson) utilised by the producer to act on the producer behalf in the event of disputes and non- payment.

SFF provides the following wording regarding their contract agreements:

"If any dispute or difference arises between us in connection with this agreement that cannot first be settled through negotiation, then the matter will be referred to an arbitrator to resolve the dispute or difference. The arbitrator shall be a person with experience within the industry agreed between the parties or, if the parties cannot agree upon an arbitrator within 14 days of the dispute being referred to arbitration, the appointment will be made by the President for the time being of the Otago District Law Society (or the President's nominee).

The decision of the arbitrator shall be binding on Silver Fern Farms and you. In all other aspects, the provisions of the New Zealand Arbitration Act 1996 shall apply."

Sources

Beef and Lamb New Zealand: <http://www.beeflambnz.co.nz/>

Meat and Livestock Australia: <https://www.mla.com.au/about-mla/who-we-are/>

Australian Beef Cattle

Key Learnings

- Forward contracts between 1 to 4 months are used by processors and major retailers to supply premium, higher quality and value branded products of beef.
- Forward contracts between 1-6 months are used to supply specific live export markets i.e. young bulls.
- The majority of cattle sold from producer to downstream purchaser is conducted on the spot market.
- Producers and processors both fear of loss from forward contracts if spot market deviates significantly at time of physical supply.
- Full market price discovery and transparency are challenges.
- Contracts should reward producer commitment and contain risk/reward clauses so both parties are protected by spot market moves at time of physical supply, formula based pricing allows this.
- Payment structures based on minimum and formula basis to provide the option to the producer for the highest possible price to be paid at time of physical supply.
- There is no significant operational derivatives market in the Australian cattle industry.

Key Industry Information

The beef cattle industry is a significant contributor in terms of economic value, supply chain jobs and export value to the Australian and Western Australian agricultural sector and wider economy. Australia is the world's 3rd largest exporter of beef, and is in the world's top ten beef producing nations.

- As of June 2016, there were estimated total 25 million head of cattle in Australia, with over 50% of these located in Queensland and the Northern Territory.
- Beef had the highest share of retail sales of any meat in 2016/17 with around 36% share of fresh meat sale by value.
- In 2016/17, Australia exported 68% of its total beef and veal production to 77 countries.
- Major Australian retailers adopt direct sourcing of finished cattle across Australia for domestic supermarket fulfilment. This is due to population growth and consolidation of supermarket concentration in Australia over past 30 years. Supermarkets require consistent and certainty over supplies of staple food products, red meat, dairy.
- In addition, domestic consumers engaged on sensitive issues such as use of HGP in cattle production.
- Major Australian Southern beef brand seeks consistent supply of cattle to stringent quality specifications for domestic and international markets.

Sale Transactions

There are a number of selling systems and methods for beef cattle in Australia depending on cattle type, specifications, target markets, breed, location and producer preference. At a producer to purchaser (processor) level the majority of cattle (estimated at >70%) of cattle in Australia are marketed without any form of forward sale agreement, therefore cattle are transacted on a spot market basis.

The main cattle selling options in Australia are:

- **Saleyard auction** - Livestock are transported to central saleyards and sold to the highest bidder. Prices reflect supply and demand in the market on the day.
- **Meat Standards Australia (MSA) eligible sales** - Cattle can only be sold only through MSA licensed saleyards or livestock exchanges. Producers and agents must be registered.
- **Paddock sales** - Livestock are inspected on the vendor's property by a buyer or agent and sold from the paddock.

- **Stockyard sales** - Livestock are weighed, graded and priced for sale.
- **Over the hooks (OTH)** - Livestock are delivered directly to the abattoir with change of ownership taking place at the abattoir scales. Terms of sale vary between abattoirs. Livestock must be accurately assessed for sale to avoid price penalties.
- **AuctionsPlus** - An electronic online auction for the sale of livestock by description (previously CALM). Combines the best features of the saleyard system and allows direct consignment to the abattoir or buyer.
- **Forward contracts** - A contractual agreement between a seller (e.g. producer) and buyer (e.g. processor) to supply a given product at a future point in time for a given price. In some cases, the price is fixed, thereby reducing the producer's exposure to a fall in market price.
- **Producer alliances** - A group of producers working together to service market place requirements.
- **Value-based marketing** - Based on the principle of being paid for the inherent value (quality and quantity) of the product to the buyer and the end user, such as systems that provide clear feedback from the consumer to the producer and has a pricing system supporting these signals.

Forward Contracts

In general, the Australian cattle industry has a reasonably well-developed physical forward contracting system for grain fed cattle finished in feedlots in the short-term range between 1 and 4 months. These forward contracts involve producers committing cattle based on specific specifications to processor or major retailers on either fixed prices or formula based pricing. The forward contracts for the physical supply of cattle offered by processors and retailers where applicable, are to attract and secure higher value cattle for premium branded beef products not commodity beef. For example, a processor and marketer of high end premium branded beef product offers incentives and premiums in a formula pricing structure to secure supplies of specific standard cattle during the winter months of Southern Australia. In the live export sector, forward contracts for the supply of specific classes of cattle i.e. young bulls can be offered between 1 and 6 months range by various live export companies.

Forward supply contracts are developed with specialist, capable and professional producers to ensure of volume, quality. Forward supply chain arrangements specify the number, specification standards and minimum price. If the spot market moves higher at time of processing then supplier receives the higher price. Currency is not hedged for international sales.

Pricing is based on:

- Base minimum price for a set specification of trade lamb i.e. Hot Standard Carcass Weight (HSCW), fat cover at GR site of lamb carcass.
- Retailer models typically pay a little higher than the prevailing market prices, to ensure commitment and consistency of supply.
- Premium food service, Branded beef example for domestic and international markets, minimum fixed pricing for targeted producers plus per carcass eight kg with additional premiums for meat characteristics and objective and subjective assessment.

To assist downstream buyers of slaughtered beef stock, there has been beef cut-out value calculators developed, that provide detailed gross margin returns and specific information down to carcass cut detail on processed beef cattle based on input pricing of the cattle.

The forward contracting system in the beef industry has resulted in:

- Consistent supply, quality, volume and timing.
- Long term investments along the supply chain, examples, processor infrastructure and brand building, producer intensive feedlots and farm infrastructure.

The forward beef cattle contracts generally contain the following information however, it is important to note that there is no industry standard normal contract as each processor or live export company will have their own specific

requirements, standards, specifications and terms and conditions. Typically, forward cattle contracts in Australia will contain the following information:

- Organisation details.
- Pricing formula and type. For example, cents per kilogram HSCW (with reference to AUSMEAT Language) and reference indicators.
- Offer and closing dates of contracts.
- Payment terms.
- Weights (either liveweight or carcass weights).
- Curfew periods.
- Fat, muscle and marbling scores.
- Reference to Meat Standards Australia (MSA) grid.
- Discount penalty and premium schedule based on specifications.
- Minimum consignment number.
- Breed standards.
- Minimum grain feeding periods where applicable.
- Place where title and risk transfers to purchaser.
- Delivery dates and location.
- Declarations to cover production quality assurance, feedlot standards, food safety and meat standards.
- Compliance with chemical residue limits.
- Cattle identification and property identification codes.
- Force majeure clause.
- Non-transfer of contract.

Riemann Agricultural Financial Products for Cattle

In October 2016 Riemann launched the Australian cattle industry the following risk management derivative products cash settled against the Meat & Livestock Australia (MLA), Eastern Young Cattle Indicator (EYCI).

- Riemann Cattle (EYCI) OTC Forwards and.
- OTC Options.

Key points

- Maturity dates out for two years, set against key saleyard selling days.
- Access to the Riemann products is through authorised brokers
- Contracts have only been traded in very modest volumes since the launch of OTC Riemann products.

Dispute Resolution and Arbitration Process

No formal dispute resolution and arbitration process is in place. Disputes are negotiated directly between producer and retailer with often a third party Del Credere Livestock Agent (For example, Landmark, Elders) utilised by the producer to act on the producer behalf in the event of disputes and non- payment.

Sources

Beef Central: www.beefcentral.com

Kilcoy Pastoral Company: <http://www.kpc.com.au/livestock/>

Meat and Livestock Australia: <https://www.mla.com.au/about-mla/who-we-are/>

Riemann Agricultural: <http://www.riemann.com.au/about/>

Forward Marketing Agreements in the Australian Beef Industry (May 2017), RaboResearch, Angus Gidley-Baird-Senior Analyst

Australian Pigs

Key Learnings

- Direct producer to processor-market relationships facilitate longer term forward contracts.
- Focus on domestic physical value chain alignment and high value export destinations (Singapore).
- Long term contracts are possible with no operating local derivatives market.
- Intensive production system removes seasonal impacts on quality and supply.
- Strong industry leadership through Australian Pork Limited (APL).
- Producers collaborating to partner and supply with major domestic retailer.
- Intense business focus on productivity, genetics, consistency, supply and animal welfare.
- Business models have evolved and adapted over time and allow for specialisation within the supply chain and risk management adoption.
- Price risk is more balanced towards the end of the supply chain that has greatest capacity to manage and influence price.
- Australian Pork Industry Quality Assurance Program (APIQP) is recognised for quality assurance excellence.

Key Industry Information

- The Australian pork industry is minor by world standards, accounting for 0.2% of total world production.
- It is not export-orientated, with exports accounting for an estimated ten percent of domestic production, valued at A\$135 million.
- The Australian pig farming industry has undergone significant consolidation and concentration in the past 20 to 30 years with approximately 2,700 pig production businesses across Australia.
- The trend has been towards larger, commercialised and vertically integrated pig production systems to achieve economies of scale and market penetration.
- Consumer demand for locally produced, premium eating quality grown ethically and sustainable pig production with strong animal welfare standards and conditions.
- In Australia, over 90% of pigs are sold by direct consignment to processing facilities with the major markets being for domestic retail and food service outlets along with exports to Singapore.
- The larger companies operating in Australia include Rivalea Australia, Craig Mostyn & Co, George Weston Foods and the Milne Agrigroup.
- Consumer demand for Australian fresh pork produced to ethical and animal standards. For example, sow barns and cages are being eliminated due to consumer demand. Supermarkets need to respond with guarantee.
- The nature of the Australian pig producer's business environment is unlikely to allow for Australia to be amongst the world's lowest cost producers. Australian producers therefore needs to maintain a disproportionate focus on the quality of produce, and package differential attributes of pork under the Australian Pork Mark brand. Australian Pork is known for more than where it is produced – it is linked to values of quality, safety, naturalness and ethics in production. Domestic retailing continues to be primarily driven by shopper convenience. This manifest itself in increasing per capita expenditure on food prepared out-of-home as well as the growth of chain meat retailers. These trends are consistent with global trends and are likely to continue.
- The pork industry's single biggest supplier is the grains industry. Grain prices are likely to remain unpredictable, due to the vagaries of weather and international trade; prices are also affected by other issues such as increasing demand due to global wealth generation, biofuels use, financial speculation and an increasing global population but relatively fixed amounts of arable land.

- The creation of adequate returns to justify future investment in the industry is also a potential supply constraint. This however, is in part mitigated by the top performing producers that will first be able to justify investment. Assuming they replicate their performance through the rest of the industry, this should improve overall industry performance.

Sale Transactions

Much of the pig production system in Australia operates on contracts, whereby pig farms may specialise in either breeding or growing out pigs under contracts. Contract growing has the advantages of lower start-up costs and the security of using existing production/management systems with assistance from an established operator. Depending on the arrangement, a contract grower provides housing, labour and management for an agreed number of weaner/grower/finisher pigs for an agreed period. The supplier provides the pigs, feed and veterinary and management support and maintains ownership of the pigs. Contract growers are generally paid a price per head per day and may receive bonuses or penalties depending on feed use efficiency, carcass quality or a range of other measurements and key performance indicators.

Forward Contracts

Consolidation in the pig industry combined with impact of pigmeat imports increased domestic specialisation, intensification led to forward contracts being standardised along the pig supply chain.

Examples of forward supply contract arrangements in the Australian pig industry revealed that in 2017, a 10-year direct forward contract between an Eastern States pig producer group and major supermarket was completed. This arrangement was based on the requirement from the supermarket for the consistent weekly supply of ethically produced pigs that meet quality, animal welfare and quantity specifications. The contract provides the required return on investment (ROI), confidence and surety for the producer group to invest in productive infrastructure, genetics, nutrition research and human resources to ensure future profitability and sustainability. In WA major pig industry participants have secured long term contracts (4+ years) to supply major retail outlets Australia wide based on similar principles.

The supplier provides the pigs, feed and veterinary and management support and maintains ownership of the pigs. Contract growers are generally paid a price per head per day and may receive bonuses or penalties depending on feed use efficiency, carcass quality or a range of other measurements and key performance indicators.

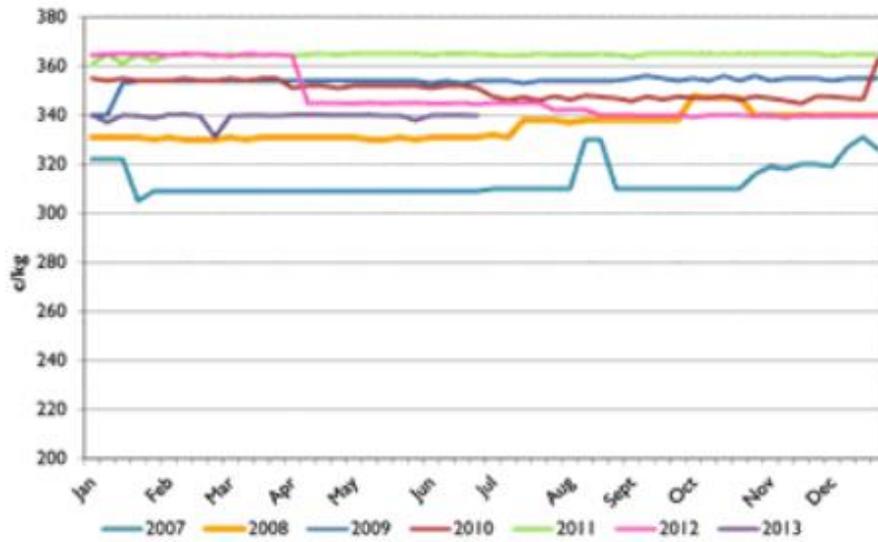
The forward contracting system in the pig industry has resulted in:

- Consistent supply, quality, volume and timing.
- ROI achieved, long term investments along the supply chain including shed, pen infrastructure, genetic development, nutritional science best practice, animal welfare standards adopted in response to consumer concerns and needs.
- Price stability (see Figure C.1 on next page).

Dispute Resolution and Arbitration Process

Disputes and arbitration clauses are contained in contracts between producer and processor/ retailer.

Figure C.1. WA Porker Prices c/kg from 2007 to 2013



Source: APL.

Source

<http://www.pork.com.au/>

IBISWorld Industry Report A0192 Pig Farming in Australia January 2017 Nathan Cloutman

Australian Dairy

Key Learnings

- Direct producer to processor-market relationships facilitate longer term forward contracts.
- Contracts need to be simple, transparent, fair and easily understood by both parties.
- Adopt conservative approach to forward prices through minimum and formula based pricing.
- Do not include retrospective price step-downs or price repayment clauses in forward contracts.
- Contracts need to consider the rights of both parties for realistic termination notice periods.
- Contracts need to consider the rights of producers to switch and transfer to other processors.
- Collective bargaining by producers can be positive, but success is not guaranteed.
- Australian Dairy Industry Council (ADIC) launched the first Dairy Industry Code of Practice for standard form contractual arrangements covering the majority of milk supplied in Australia.
- The use of derivative products to manage price risk and volatility should be considered.
- Contracts should reward producer commitment and contain risk/reward clauses so both parties are protected by spot market moves at time of physical supply, formula based pricing allows this.
- Payment structures based on minimum and formula basis to provide the option to the producer for the highest possible price to be paid at time of physical supply.
- Focus to be on improving relationships between farmers and processors in regions where the farm gate milk price fluctuates would be a more effective and efficient way of increasing transparency about market conditions in the dairy industry and its potential impact on farmers.
- Long term contracts beyond 12 months are possible with no operating local derivatives market.
- Intense business focus on productivity, genetics, consistency, supply and animal welfare.

Key Industry Information

- The Australian dairy sector is the third largest agricultural industry behind beef and wheat. Australia's dairy industry consists of around 6,000 dairy farms which produce approximately 9.5 billion litres of milk a year.
- Unlike many countries around the world, there is no legislative control over the price milk processing companies pay farmers for their milk. Since deregulation in 2000/01 all prices within the industry are set by market forces.
- The dairy production supply chain is unique, in that the fresh milk produced by dairy farmers requires cold chain logistics, due to freshness and perishability and must be collected on a daily basis.
- Export demand for a range of dairy products from the east coast of Australia.

Sale Transactions

Dairy milk contracts for domestic and export markets designed to provide processor and market product availability and certainty, cashflow stability, in exchange for quality, volume to specifications. Contracts are linked to step up and step down retrospective payment provisions.

For example, Lion Dairy and Drinks has been responsive to farmers looking to reduce price volatility. Since 2013, Lion has offered its dairy farmers in the southern region (Victoria, Tasmania and South Australia) a broad range of fixed and variable farm gate pricing options for contracts of varying lengths (one, three or five years) that help farmers to better manage market volatility. In some milk supply regions processors generally seek to smooth production across the year to meet domestic fresh milk production. In these regions, processors make greater use of contracts and price signals to encourage flat supply and avoid surpluses, as there is limited capacity to process surpluses into storable dairy products.

Forward Contracts

The milk contracts offered by processors are comprehensive, complex, sophisticated and specific. However, there are moves to simplify milk contracts and make them more easily understood. The milk contracts stipulate price in cents per litre, including premiums and discounts schedule, quality and seasonal volumes but also specify milk supply, collection and quality assurance standards, dispute resolution methods, as well as payment term options.

Australian farm gate milk prices are largely determined by major dairy processors who collect the raw milk direct from farmers. The majority of dairy farmers in Australia supply milk to processors via standard term contracts or milk supply agreements that can range from 12 months to 3 and 5 years. In some circumstances, fixed contracts are offered by processors.

Farm gate milk prices are based on the milkfat (butterfat) and protein components of raw milk, with protein attracting a higher price. Australian farm gate milk prices are heavily influenced by global dairy commodity prices and exchange rate movements with up to 75 per cent of Australia's total milk production exposed to world prices for dairy commodities.

Dairy farmers and manufacturers use a variety of supply agreements, all of which affect the prices received for raw milk. Milk tier pricing is a prominent type of agreement used by the industry. These agreements divide raw milk volumes into two tiers. Tier one refers to the contracted volume of raw milk that dairy farmers must produce within a given timeframe. Tier two refers to additional milk produced. Generally, tier one prices are higher than tier two prices because the former is the amount required to meet raw milk demand and the latter is surplus. Many manufacturers also use average seasonal pricing, adjusting the amount they pay farmers for raw milk each month, to obtain a desired average price for the year.

In addition, milk supply contracts may also include the following contentious challenges:

- Termination notice periods.
- Retrospective price 'step down' clauses.
- Excess milk supply clauses.
- Third party supplied milk.
- Dairy herd sale clauses.
- Farm sale or lease clauses.
- Farmer retirement clauses.

Dairy milk contracts for a perishable product offer whole of supply chain stability, reduced volatility with consistent high quality domestic market supply to specifications delivered to consumers.

Recent learnings regarding retrospective price step-downs clauses in contracts have a severe financial impact on dairy farmers particularly in Southern Australian (NSW, Victoria, Tasmania) and should not be used. Instead, lessons include:

- The need in non-hedging available markets for processors to adopt conservative approach to offering forward prices through minimum base and formula based pricing.
- Do not include retrospective price step-downs or price repayment clauses in forward contracts.
- Contracts need to consider the rights of both parties for realistic termination notice periods.
- Contracts need to consider the rights of producers to switch and transfer to other processors.
- Collective bargaining by producers can be positive, but success is not guaranteed.
- Australian Dairy Industry Council (ADIC) launched the first Dairy Industry Code of Practice for standard form contractual arrangements covering the majority of milk supplied in Australia.
- The use of derivative products to manage price risk and volatility should be considered.

- Contracts should reward producer commitment and contain risk/reward clauses so both parties are protected by spot market moves at time of physical supply, formula based pricing allows this.
- Payment structures based on minimum base pricing and formula basis to provide the option to the producer for the highest possible price to be paid at time of physical supply.

To try and alleviate a number of challenges associated with milk contracts in the dairy industry, the Australian Dairy Industry Council (ADIC) launched the first Dairy Industry Code of Practice in June 2017 for standard form milk contractual arrangements covering the majority of milk supplied in Australia.

Through consultation with state member organisations, farmers and processors, the ADIC developed the voluntary Code to help ensure greater transparency and fairness in milk supply and pricing. It is anticipated most of the milk produced in Australia will be covered by the Code. The aim of code is for contracts to be fair, simple, realistic and easily understood by both parties. The fundamental principles that the code seeks to address include:

- Contracts should reward producer commitment and contain risk/ reward clauses so both parties are protected by spot market moves at time of physical supply, formula based pricing allows this.
- Payment structures based on minimum base pricing and formula basis to provide the option to the producer for the highest possible price to be paid at time of physical supply.
- Pricing adjustments to farmers who are out of contract being clearly defined in the contract and how this might happen.
- How price changes should be made.
- No 'step down' price changes should be made retrospectively.
- All farmers should receive payment at the time it is accrued over the contract—that is, loyalty payments should not apply to milk previously supplied.
- The pricing formula and the price setting mechanism are clearly defined with the contract.
- Exclusivity clauses should not apply if the processor is not prepared to pay the same price for the last litre of milk as the first litre.
- Clearly defined mechanisms for how contract terms and conditions can be modified.

Dispute Resolution and Arbitration Process

No formal dispute resolution and arbitration process is in place. Disputes and arbitration clauses are contained in contracts and negotiated directly between producer and processor/ retailer.

Under the June 2017 Dairy Code of Practice, a contract between dairy farmers and milk processors must include a clause which describes the process on how disputes between the parties to the contract will be managed.

ACCC Recommendation following 2017 interim report into the National Dairy Industry:

“The (dairy) industry should establish a process whereby an independent body can administer mediation and act as a binding arbitrator or expert in relation to contractual disputes between farmers and processors.”

Price Discovery and Transparency

The Global Dairy Trade (GDT) Price Index for dairy products, which is an amalgam measure for all dairy products traded, provides reference prices which represents the average price of dairy products traded for globally traded dairy ingredients. GDT claims to offer transparency, data-analysis and digital trade facilitation aimed at delivering services that help buyers, sellers and analysts realise opportunity in the dairy trading world.

Global Dairy Trade is owned by the Fonterra Cooperative Group, but is operationally and physically separate from Fonterra. Both GDT Marketplace and GDT Events have clear governance structures. An independent Oversight Board oversees GDT Events' rules and structures so that they are monitored and developed in a neutral and transparent manner. All Trading Events are run by an independent Trading Manager, CRA International Inc, a

global specialist in developing and operating auctions. GDT Marketplace also has operational and physical separation from Fonterra, supported through a robust compliance monitoring framework.

Collective Bargaining in the Dairy Industry

Collective bargaining in the dairy industry has been viewed by some stakeholders as a means to improve the ability of dairy farmers to engage with processors to determine supply contracts. In the dairy industry, collective bargaining is when two or more dairy farmers collectively negotiate terms and conditions of supply with milk buyers (processors). However, collective bargaining risks breaching the Competition and Consumer Act 2010 (CCA Act). Collective bargaining has the potential to encourage vigorous competition because it can address power imbalances between farmers and processors. While ACCC approval can provide protection from legal action under CCA Act, approval is not automatic, and the ACCC assesses each application to decide if the public benefits outweigh the detriment to the industry. The processors do not have to engage with a collective bargaining group if they do not wish to.

The risk to dairy farmers is that they can go through the whole process of forming a collective bargaining group and obtain ACCC approval but do not get recognised or engaged with by downstream buyers and processors. The issue of sustainability for collective bargaining groups is an issue to be considered prior to forming.

Dairy industry stakeholders have put forward a range of options to improve farm gate milk price stability and address the power imbalance between processors and suppliers, including more equitable sharing of risk. This includes strengthening provisions for collective bargaining, and better understanding the implications of unfair contract term laws for milk supply contracts.

The Role for Derivatives in the Australian Dairy Industry

Using a combination of spot, futures and options contracts might allow Australian dairy producers, processors and industrial consumers to more effectively manage price shocks that impact the industry regularly (KPMG Economics, 2016). Achieving this will transform the Australian dairy industry, enabling it to have a 'premium' discussion between the supply chain participants, rather than a 'price' discussion.

Such derivative products are not readily available in the Australian financial market, but they are available in overseas markets. However, with the use of foreign exchange hedges, AUD price certainty could be achieved for Australian dairy suppliers (KPMG Economics, 2016).

Implementing effective risk management strategies for price volatility in agricultural markets is complex. It takes time and the issue of derivatives can be confusing to the grower and supplier, and even for those operating in management positions within the industry. However, these are not valid reasons to continue to let the Australian dairy industry swing from peak to trough, placing pressure on livelihoods and economic value in the process. It seems only logical that dairy industry participants should look to implement price pooling arrangements with forward contracts that have been so effective in giving sugar cane farmers revenue certainty in not only a current season, but several seasons out.

The Chicago Mercantile Exchange (CME) developed frozen pork belly futures contracts, which allowed meat packers to manage the volatility in the spot market for hog prices, and manage inventory price risk for already processed frozen pork carcasses. A futures and derivatives market for dairy products already exists, with trading occurring on exchanges in Europe (EUREX), the United States of America (CME) and New Zealand (NZX). These exchanges offer a range of dairy futures and options contracts, including for both the physical delivery and cash settlement for these contracts.

It appears that participants in the Australian dairy industry do not utilise these risk management tools – or utilise them to a large degree – in managing the price volatility that exists in the sector. The rationale as to why the Australian dairy industry is not using forward contracts and options more extensively seem obtuse, including 'the derivative market isn't deep enough' or 'contracts aren't written in \$A denominations, so we'd just be taking on more forex risk'.

Sources:

ADIC, (2017). "CODE OF PRACTICE for Contractual Arrangements between Dairy Farmers and Processors in Australia". Australian Dairy Industry Council Inc. 30 June 2017

Dairy Australia: <https://www.dairyaustralia.com.au/industry/prices/farmgate-milk-price>

Global Dairy Trade (GDT) Price Index: <http://www.globaldairytrade.info/en/about-us/about-us/>

IBISWorld Industry Report A0160 Dairy Cattle Farming in Australia February 2017

KPMG Research Paper KPMG Economics, June 2016, last viewed, www.kpmg.com.au

The Senate Economics References Committee August 2017, Australia's dairy industry: rebuilding trust and a fair market for farmers

Australian Grains (Wheat)

Key Learnings

Key features of Australian wheat marketing and risk management systems:

- Multiple marketing, information and risk management options.
- Global and local derivative exchanges.
- Quality classification standards.
- Storability.
- Many market participants operating in a regulated environment including, producers, brokers, traders, end users, speculators, advisors and financial institutions.

Key Industry Information

- Wheat is Australia's primary agricultural commodity crop and accounts for more than 50% of the country's annual grain production.
- Wheat has a range of end uses including human and animal supply chains and is a key ingredient for making bread, pasta, noodles and other domestic and international staple food items.
- For evaluating the Australian grains industry, the focus is on wheat price discovery methods, risk management and forward marketing options. Wheat prices are extremely volatile and depend on global supply, end user demand and weather patterns.
- Wheat exports were a government regulated and controlled commodity, therefore Australian wheat producers produced the wheat, delivered to AWB pool and waited for payment. No marketing required by the producer or other participants under the single desk system for wheat exports in Australia.

Sale Transactions

The price of Australian wheat is linked to global markets with the global wheat price expressed in US\$ being made up of the underlying futures price traded on the main central exchange i.e. Chicago Board of Trade (CBOT). The price of wheat in Australia is a function of the futures price, foreign exchange component and basis, the difference between the physical local domestic price for wheat and the futures market. These components can each be individually managed by market participants through multiple risk management tools and market information sources. For example, forward exchange contracts (FEC) and futures currency contracts.

Forward Contracts

In Australia there are over thirty (30) grain trading companies, multiple market information and financial institutions and professional service firms which either hold or operate under a regulated Australian Financial Services License (AFSL) to offer grain market participants a range of marketing options for the physical grain including cash and physical forward contracts along with access to derivative products to manage price risk, such as futures, swaps and options.

Furthermore, the full wheat market deregulation that occurred in Australia between 2008 and 2012 resulted in significant growth in the offering of innovative marketing options and market information services to producers and supply chain participants. In addition, the peak industry body Grain Trade Australia (GTA) who represents over 280 members from the Australian grain supply chain, develops and oversees grain trading standards, trade rules and grain contract templates, whilst also offering a dispute resolution and arbitration service backed by the Australian legal framework.

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sources. For example, forward exchange contracts (FEC) and futures currency contracts. The global wheat trade is characterised by strong price discovery, transparency and availability of risk management tools offered by financial institutions through the function of active, centrally cleared and standardised derivative markets trading on central exchanges like CBOT and the Australian Stock Exchange (ASX).

The forward contracting system in the wheat industry has resulted in:

- Price discovery, transparency.
- Multiple marketing options developed.
- Well-developed trade rules and contracting framework to serve industry.

Wheat marketing in Australia has the following distinct advantages over sheep, as wheat can be:

- Stored, monitored and marketed from a central storage facility using for example the CBH-LoadNet technology. The CBH LoadNet system provides the functionality to:
 - View all delivery information.
 - Nominate loads for marketing.
 - Easily see which loads are un-nominated.
 - Destination site information.
 - Freight charges information and calculations.
 - Links to marketers pricing information.
 - Estimate crops for coming harvest to enable site planning.
 - Check quality information.
- Uniformly and consistently classified through Wheat Quality Australia (AQW) and Grain Trade Australia (GTA).
- Traded through global and domestic standard derivative markets by financial institutions and professional service firms that operate under strict financial market regulations.
- Marketing options through an extensive network of grain marketing organisations and platforms. For example, Clear Grain, Grain Brokers Australia, Agridigital.
- Effectively and objectively monitored and researched due to the large range of market information and price discovery sources to assist price transparency. Examples include, Daily Grain, Profarmer, MarketAg.
- Financed as a distinct commodity due to the ability of wheat to be centrally stored, insured and specified.

Dispute Resolution and Arbitration Process

GTA has a formal and fully developed dispute resolution and arbitration service for the grains industry.

Price Discovery and Transparency

The global wheat trade is characterised by strong price discovery, transparency and availability of risk management tools offered by financial institutions through the function of active, centrally cleared and standardised derivative markets trading on central exchanges like CBOT and the Australian Stock Exchange (ASX).

Sources:

www.gta.com.au

www.grdc.com.au

Australian Horticulture

For this case study the focus within the horticulture industry is vegetables. Marketing options and supply chain arrangements including forward contracts in the horticultural industry vary significantly depending on the product type, end target markets; either domestic or export, retail supermarket, food service sector or wholesale.

Key Learnings

- Direct producer to processor-market relationships facilitate longer term forward contracts.
- Forward contracts require retail supermarket and or food service companies as end customer.
- Producers must meet high quality specification standards.
- Supply volumes are tightly regulated by the processor.
- Producers required to have strong farm quality assurance and food safety standards.
- No agents or middlemen involved in direct forward contracts.
- Collective bargaining evident in potato contract negotiations and supply in Tasmania.
- Longer term forward price provides certainty for financial, production and supply management.

Sale Transactions

Horticultural vegetable products share similar characteristics with the sheep industry in that products are perishable, require some form of processing and transformation to reach end markets, require cold chain logistics, are subject to seasonal and climatic events and lack transparent and clear marketing options and market information platforms. In addition, there is no operational derivatives market for the horticultural sector to assist with price discovery or risk management.

The issue of price and absence of forward contracts for producers in the horticultural industry was summarised as follows, by the Australian Competition and Consumer Commission (ACCC) in their Industry views on competition and fair-trading challenges (October, 2016).

A key issue in both industries (horticulture and viticulture) appears to be a lack of future certainty. In many cases, market participants have very little information about prices or do not have forward contracts. For example, consider a fruit grower that does not have a written contract with a processor, or a winemaker that has no ongoing agreements with a retailer. In both instances, it is likely the processor and retailer could end the arrangements at any time without legal ramifications. This lack of certainty is likely to make investment unappealing or inefficient, and to reduce the future growth of the industries.

Forward Contracts

There are some examples within the Australian horticultural industry of functional and effective forward contractual arrangements, specifically in the vegetable industry. In general:

- Forward contracts require retail supermarket and or food service companies as end customer and larger consolidated producers bypassed middleman and wholesale markets to engage downstream with processors and retailers to develop forward contracts direct.
- Producers must meet high quality specification standards.
- Supply volumes are tightly regulated by the processor/ retailer.
- Producers required to have strong farm quality assurance and food safety standards.
- In majority of cases no agents or middlemen involved in direct forward contracts
- Collective bargaining evident in potato contract negotiations and supply in Tasmania
- Longer term forward price provides certainty for financial, production and supply management.

The supply of vegetables to processors for use in processed beans, peas and potatoes is made under supply contracts with processors. Suppliers are contracted to supply in certain time delivery periods. Overall production is managed in coordination with the processor to maintain a supply profile that is in line with the needs of the end market. The contracts specify area, timing, yield performance, product specifications, price and terms. The contracts carry strict penalties for variation from specification to avoid wastage or poor yields through processing that impact on the downstream profitability.

Impacts of forward contracts in horticulture include:

- Stable price, quality, consistent supply to specifications.
- Adequate and fair returns along the supply chain.
- Evidence of strong information and feedback on issues and areas for productivity and quality improvements.
- The value chain relationship between producer and processor/retailer had been developed and fostered over a long period of time.
- 12-month supply contract arrangement with minimum pricing and bonus performance payments.

Some examples of vegetable future contracts are provided below.

Vegetable Contract Example 1

Products: Vegetables

Parties to the contract: Vegetable producer and processor/distributor

Key features of forward contract

- The value chain relationship had been developed and fostered over a long period of time.
- 12-month supply contract arrangement.
- Minimum price agreed with bonus payments for exceeding quality specifications.
- Payments were made electronically direct to producer.
- Quality specifications agreed from outset.
- Quantity volumes agreed from outset, with flexibility depending on external events.
- Farm production quality assurance and food safety standards were mandatory.
- No external agents or 'middlemen' were involved in the contract.

Vegetable Contract Example 2

A new agreement between Coles and Simplot to supply Australian-grown produce from Simplot for the next eight years. Under a supply contract which has been extended until 2024, Coles has committed to sourcing an additional 6 million kilograms a year of Australian-grown vegetables which was previously sourced from overseas.

The new contract strengthens a 20-year relationship between Coles and Simplot. It also follows a five-year contract signed by Coles in 2014 to source 100 per cent Australian-grown vegetables from Simplot for Coles Brand frozen vegetable and potato products.

Source: <https://www.simplot.com.au/>

Potato Contract Example 3

Frozen French fry maker Simplot has agreed to pay its Tasmanian potato suppliers 5% more, phased in over the next three years.

The new contract was negotiated by a growers' collective bargaining group, headed by Scottsdale farmer Trevor Hall.

"There are a few points to it, it's a three-year contract," Mr. Hall said.

"Simplot have offered a supplementary payment for the harvest we're currently doing, due to adverse conditions, and that'll be \$320 a hectare.

"That's for the crop that's being pulled out of the ground now, so that's classed as a supplementary payment.

"Then we'll start a three-year contract for the next planting in spring, which will see a price increase of \$7.50 a tonne, then a year after that \$5, and the year after that a price increase of \$2.50 a tonne."

It was ratified by 60 growers at a meeting in Deloraine.

Mr. Hall told the meeting Simplot intended to maintain its current cropping area in Tasmania until 2019, but its plans to upgrade the Ulverstone factory had not been confirmed.

He described the gains as "modest" but said the deal provided stability to growers who were contending with declining demand for poppies, pyrethrum and milk.

"It adds stability to the industry, because you know what price you've got three years out," Mr. Hall said.

"You're not growing on a one-year crop, to re-invest in a new harvester, irrigator, or buying water, which there's been a lot of that done.

"It gives some sort of stability that you're not going to receive a sudden price drop."

Source: <http://www.abc.net.au/news/rural/2016-05-24/tch-simplot-potato-deal/7439282>

Dispute Resolution and Arbitration Process

No formal dispute resolution and arbitration process is in place. Disputes and arbitration clauses can and are contained in contracts between producer and processor/ retailer.

USA Red Meat

Sale Transactions

The dominance of using the spot cash market as the primary procurement method by processors in the USA red meat industries is cited in the report by Lawrence *et al* (2007) due to the flexibility and opportunity to purchase meat at lower prices than alternative marketing arrangements (AMA's). The report found that positive decision factors for the use of spot market purchasing by meat processors included:

- Allows for independence, complete control, and flexibility of own business
- Allows for adjusting operations quickly in response to changes in market conditions
- Can purchase meat inputs at lower prices.

Lawrence *et al* (2007) concluded there were several methods of buying and selling and pricing (meat) products in the USA, but the cash market dominates. Furthermore, larger firms were more likely to use AMAs in the USA than smaller firms in each of the sectors, beef, pork and lamb (Ward, 2010).

Forward Contracts

Whilst spot cash markets dominate downstream meat purchasing decisions in the United States beef processing sector, there was a slight trend away from using the cash spot market and toward AMA's during the period 2001 to 2010. The use of forward contracts in the USA beef industry went from 3% to 10% over the same period, primarily due to the demand for specific beef traceability and quality specifications (Ward, 2010).

The top reasons given by USA packers (meat processors) surveyed in a report by the USA Grain Inspection, Packers and Stockyard Administration (GIPSA, 2007) for using AMA's were to:

- Improve week-to-week supply management.
- Secure higher quality cattle.
- Allow for product branding in retail stores.

AUCTIONSPLUS

Overview

AuctionsPlus is a service provider to the rural community offering real-time Internet Auctions. AuctionsPlus allows commodity transaction, reserve price setting and legal change of ownership without the seller, buyer or product having to come together physically at the time of the sale.

The company was originally started in the 1980s to provide electronic exchange of ownership of livestock and a reliable price discovery system for the producer. Over the past twenty-five years the AuctionsPlus auctioning system has been used to sell more than just livestock, showing the system's ability to adapt to different products and selling environments.

AuctionsPlus did not have an Internet presence until 1998. A Windows based application was released in the mid-1990s before AuctionsPlus developed its software into an Internet ready system working on all types of computer platforms.

AuctionsPlus programmers have written application software for a range of applications that have operated on the AuctionsPlus network. The major application for our software has been electronic trading (auctions and a bid and offer marketing system). Apart from our core business of livestock auctioning, AuctionsPlus has also over the past twenty-five years developed application software to electronically transmit information or sell the following products:

- Sheepskin auctions.
- Grain auctions - bid and offer marketing systems.
- AuctionsPlus Market Comments.

AuctionsPlus can provide the platform, operating terms and conditions and arbitration services to support and facilitate forward sales of various classes of livestock. Specific operating terms and conditions have been developed to facilitate forward sales of livestock on the AuctionsPlus platform. However, forward sales of finished sheep and lamb would require additional terms and conditions to be developed to ensure sale integrity and buyer confidence. AuctionsPlus are willing and able to support the continued development of facilitating and supporting forward sales of all classes of sheep not just reseller lambs.

The ability for producers to list and sell livestock online without the need to physically send them to a saleyard thus enabling price risk management and not being forced into selling as they may be at a physical saleyard due to freight return costs, potential biosecurity concerns and challenges associated with returning stock back to property of origin from saleyards.

However, it is important to note that an AuctionsPlus accredited and approved livestock assessor is required for any livestock sales listed on the AuctionsPlus sales platform. In addition, a registered livestock agency is also required to list the livestock for sale on behalf of the vendor, the actual Contract for Sale is directly between the Selling Agent or Vendor and Purchaser. AuctionsPlus does not buy, sell, or market any livestock.

Sheep Sales

The vast majority of sheep sold on AuctionsPlus are between farmers (store unfinished stock and breeder sheep). AuctionsPlus does not have a large use and adoption rate in the WA sheep industry due to the dominance of saleyards. In WA private on farm sales are majority conducted via direct negotiation of sheep pricing terms and arrangements between farmers, facilitated by livestock agents.

Pricing

- 3.1 The Vendor or Vendor's Agent must nominate the sale option or options upon which the Vendor offers the Lot for sale.
- 3.2 Pricing, as nominated on behalf of a Vendor, for sales conducted through the AuctionsPlus System or through Negotiated Sales can be on a:
 - (a) Per head basis, where the price is in dollars and cents per head for all Livestock in the Lot;

- (b) Liveweight basis, where the price is in cents per kilogram for the aggregate liveweight ascertained by Certified scales for all Livestock.
- (c) Carcase weight basis, where the price is in cents per kilogram for the aggregate weight ascertained by Certified abattoir scales of the carcasses of all Livestock in the Lot subject to adjustments for bruising as specified in the applicable AuctionsPlus bruising Schedule;
- (d) Grid basis, where the price is in cents per kilogram as the maximum price applied on the Purchaser's submitted discount grid Schedule in relation to weight, fat and dentition. Factors other than weight, fat and dentition disclosed in the assessment cannot be discounted.
- (e) Unit basis, where the unit is specified by the Vendor depending upon the commodity which is the subject of the Lot.

Impact

- Forward price discovery, without livestock leaving the farm.
- Increased competition via electronic auction selling.
- Scheduling of delivery time for store livestock to be “finished” by specialist intensive feeders.
- Interest by Auctions Plus to develop, support and promote a forward contract system targeting greater numbers of finished sheep and breeder sheep.

Dispute Resolution and Arbitration Process

If a dispute arises regarding the Forward Contract Terms or Operating Conditions, the laws of New South Wales will apply. In relation to any such dispute, you agree to submit to the exclusive jurisdiction of the courts of New South Wales.

If the parties are unable to resolve the dispute within fourteen (14) days of it having been raised, the dispute shall be referred in writing to AuctionsPlus for arbitration who will establish panel arbitrators.

Note: fee for service applies with parties responsible for arbitration costs.

Sources

<https://auctionsplus.com.au/auctions/>

APPENDIX D: FORWARD CONTRACTS – WHAT DIFFERENCE WILL THEY MAKE?

INTRODUCTION

There is not a significant amount of in-depth independent economic research and analysis, case studies and empirical evidence in Australia on production and alternative forward marketing contract arrangements in many of the major agriculture commodity sectors, particularly those without operational derivative markets (e.g., sheep/lamb, beef, pigs, vegetables).

The information available in Australia is predominantly based on extracting commercial industry or specific supply chain examples within individual agriculture commodity sectors. For example, pigs, beef, dairy, horticulture. There is however, a significant amount of research, analysis and evaluation of forward contracting from the USA across various agriculture commodity sectors including but not limited to beef, pigs, poultry. The major driver of this USA research and analysis is the United States Department of Agriculture (USDA), Grain Inspection, Packers and Stockyards Administration (GIPSA) and the Agricultural Marketing Service (AMS).

WHY CONTRACTS WILL GROW IN USE

Key reasons forward contracts are likely to grow in use include:

- Demand for differentiated agricultural products to meet specific consumer preferences will continue to grow, and such products are generally produced under contract.
- Pressures will mount to ensure traceability of products for environmental, sustainability, health and consumer concerns, and contracts provide one way to ensure this traceability.
- Pressure to reduce environmental degradation associated with agricultural production will likely result in upgraded production technologies and require tighter management of production systems through contracting.
- Large scale, professional and specialised producers will forward integrate with downstream market participants to reduce volatility, bypass middlemen (agents and wholesale) and create market certainty for out of season supply of lamb and sheep.
- Finally, large farms account for sharply growing shares of agricultural output. Contracting is closely associated with farm size, and contract use can be expected to grow along with the increase of large farms.

Specific reasons why upstream (farmer producers) and downstream (processors) parties may enter into contracts are presented below.

Upstream (Farmer Producers)

Potential reasons that producers and other upstream entities (feedlot) may enter into forward contracts include the following:

- Contracts can limit the risks faced by farmers by shifting price and (sometimes) yield risks to market participants who are better positioned to bear them, and in some cases, by controlling and reducing risks.
- The evidence for livestock markets indicates that contracts can substantially reduce income risks associated with price and production variability, and contract terms can be calibrated to tailor the degree of risk reduction offered. Producers are willing to pay for risk reduction in terms of potential for overall lower returns, (based on the risk reward equation). Producers frequently cite risk reduction as a major benefit of production and marketing contracts and it is likely to be one important reason for contracting.
- Contracts frequently provide farmers with important benefits, such as reducing costs associated with uncertain income streams. Contracts can facilitate the spread of new production technologies, including advances in genetics, feed formulations, nutritional services and disease control. Contracts can lead to reduced processing costs and provide consumers more customised and affordable products.

Downstream Processors

Potential reasons that processors and other downstream entities may enter into forward contracts include the following:

- Buyers are increasingly interested in identity-preserved products. For example, specially produced commodities (organic, health claims), with specific attributes that are kept segregated throughout the marketing chain. Identity preservation requires substantial investments in testing, monitoring, and physical separation. Contracts may reduce those costs by controlling production and processing practices and by requiring investments in information and measuring at the stages where they are most effective. Attribute certification can be met through contractual control.
- Improvements in product uniformity, for instance, can reduce economic waste and allow the use of standardised dedicated equipment and systems by processors to lower processing costs. Contracts can also be used to regulate product flows to processing plants, allowing processors to cut costs through more efficient use of plant capacity.
- Processors often cite improved and more consistent livestock quality as the most important advantages of contracts.
- Controlling input supply, because many agricultural processing facilities involve extensive investments in buildings, equipment, and labour, processors may need to establish an orderly flow of a large volume of uniform products to manage and control operating costs.
- Improving response to consumer demand by having greater control over the production process, can better respond to changing market conditions. The market responds to consumer preferences, which may require producers to alter standards or product specifications
- Expanding and diversifying operations, as processors and other businesses can strengthen their competitive position in the market through contract arrangements by virtue of increased coordination and efficiencies available with larger volumes of business. These companies are large and diversified. Even though the contractor accepts a greater share of the market (price) risk with production contracts, the benefits of having a regular supply of uniform goods may outweigh the costs. Large, integrated firms may also recapture returns in another phase of production. Their financial strength allows them to sustain periods of lower returns longer than processors who depend on open spot markets.
- Distribution of the benefits of contracting, as processors use contracts because they desire uniformity and predictability to suit consumers, but they also benefit from lower costs in processing, packing, and grading. Farmers benefit by having a guaranteed market, price and possibly production inputs.

CONTRACTING RISKS AND ISSUES

Income from farming is risky because it depends on prices and output that may fluctuate widely and are difficult to forecast with accuracy. Risks matter for several reasons. First, some farmers may dislike income fluctuations. Second, risk can impose costs: when income is variable and uncertain, farmers may find it difficult to meet recurring financial obligations or to plan production and investment decisions.

Contracts may lead to unanticipated new risks for producers. Under some conditions, they can allow buyers to exercise market power, reducing prices received by producers. As more production shifts to contracts, reductions in spot market volumes can raise spot market transaction costs.

Whilst contracts may offer ways to reduce risks, they can also create new risks. In addition, farmers may lose some of the independence they have as the sole decision maker in business. The producer may have less flexibility in how to farm if the contract provides guidelines on what practices must be followed. The farmer may have less control over marketing decisions and may receive less for the production if it does not meet quality standards specified under the contract. Importantly not all of the production may be eligible for the contract price.

One of the purposes of a contract is to fix the price or premium to be paid. As a result, contracting reduces the flexibility the parties have to take advantage of price changes in the open spot market.

A summary of key risks include:

- **Risk of spot market deviations:** The physical spot market will be either higher or lower than the contract price at time of supplying the physical contracted commodity product. This represents risk of higher and lower returns for the producer, processor and buyer.
- **Risk of reduced competition in spot markets:** The greater use and adoption of forward contracts reduces the participation of buyers in spot markets. This is potentially offset by reduced supply in spot markets.
- **Loss of price information:** Due to increased use of contracting may reduce availability of publicly available pricing transparency.
- **Risk of not being paid:** Until the farmer is paid, they are an unsecured creditor therefore, payment risk mitigation (insurance, use of agent) and counter party due diligence is a critical consideration prior to entering into contracts with buyers.

CONTRACTING BENEFITS

Key benefits of forward contracts include:

- Reduced volatility for the whole supply chain.
- Income stability, because most contract arrangements reduce risks in comparison with traditional production or marketing channels, a contracting farmer's resulting income tends to be more stable over time.
- Facilitate coordination among stages of production, speeding adoption of new technology; improving information flows; managing quality, uniformity, and delivery; and enhancing access to credit.
- Increased use of forward contracts for turn off sheep livestock to processors and live export could provide confidence and stimulate total sheep flock number growth through increased use of contracting to secure future ewe breeders.
- Market security, as contracts typically convey signals to the producer regarding grades and standards that best meet consumer demands. By entering into these arrangements, the grower can guarantee that someone will buy the produce, if the specifications are met. Also, by varying degrees, some amount of the market-oriented price risk is transferred from the producer to the contractor.
- Improved efficiency, higher single factor productivity, as producers may benefit from increased technical advice, managerial expertise, market knowledge, and access to technological advances such as high-quality genetics, nutritional advice not otherwise available. Productivity improvements reduce farm costs by decreasing the quantity of inputs needed to produce a given level of output.
- Improved access to capital through income stability (with suitable credit worthy counter parties) associated with contract arrangements may allow a more favourable credit rating for the borrower, thus enhancing specialised access to credit. Contracts may make for a more attractive borrower. Some lenders may require contracts as a condition for a loan. By providing a steady source of revenue and reducing marketing risks, a contract may make banks more willing to lend money.
- Reduced transactions costs. For example, the producer, processor and end customer become much closer. There is growing evidence in agri-food chains of wholesale and middleman bypass.
- Potentially lower financial risk associated with contracts. Certain livestock production contracts as used in the Australian pig and beef cattle industries can reduce financial risks by providing a guaranteed source of cash flow while reducing need for capital. For example, by raising livestock on contract, there is no need for the farmer to purchase the animals but instead can use existing labour and facilities to manage the production process. The contract will provide regular payments if contract requirements and obligations are met.
- Reduced financial costs, biosecurity incursions, quality control impacts and environmental impacts associated with use of public open saleyards.

- Assist to create producer alliances, e.g. a group of producers working together in to service market place and end consumer requirements to overcome market power imbalance.
- Improved quality control as contracts can provide control over the genetic technology, production methods, and inputs used, and help ensure uniformity and quality of the commodity produced.
- Assuring adequate supply, as contracts offer a way to manage the quantity acquired to ensure an adequate supply.
- Contracts can control access to new technologies (for example new genetics), thus serving as a form of intellectual property protection.

PRODUCT DIFFERENTIATION AND CONTRACTS

Although spot markets still govern a large value of agricultural production and remain an efficient way to produce and distribute many products. This is especially true for more generic products for which differentiation is less important to the final consumer. Spot markets will fail to respond to changes in consumer demand if prices do not reflect the attributes of products that consumers prefer.

For example, some observers of the beef industry argue that spot market beef pricing systems failed to accurately reflect consumer preferences for taste and tenderness, and hence producers were not rewarded for producing desired products or penalized for producing inferior ones.

Contracts may help firms procure specific attributes by precisely setting forth production, processing, and/or marketing practices, and providing for information exchange, monitoring and advice. Demand for differentiated agricultural products to meet specific consumer preferences will continue to grow, and such products are generally produced under contract.

Pressures will mount to ensure traceability of products for environmental, sustainability, health and consumer concerns, and contracts provide one way to ensure traceability. In addition, pressure to reduce environmental degradation associated with agricultural production will likely result in upgraded production technologies and require tighter management of production systems through contracting. Finally, large farms account for sharply growing shares of agricultural output. Contracting is closely associated with farm size, and contract use can be expected to grow along with the increase of large farms. Farm products are more differentiated and are often tailored to buyers' specific requirements.

To meet the demands of these differentiated markets, farmers must provide extensive product information and, as a result, must invest in more monitoring and recordkeeping technologies. Many of these changes stem from the efforts of processors and retailers to attract consumers through special product attributes and lower retail prices. Those efforts require control and monitoring throughout the many steps—known collectively as the supply chain, involved in producing and delivering products from the farm to consumers. Within the supply chain, formal contracts increasingly govern the transfer of farm products, replacing traditional cash transactions on the spot market.

Sources

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