Price management and investment mechanisms

Case studies for the US organic grains sector

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Introduction

Organic food has a 4% share of the food market in the US but only represents 0.8% of total agricultural acreage. Between 2008– 2016, consumer demand for organic food steadily grew thus increasing organic production acreage. Over this 8-year period, US production of organic corn, soybeans, wheat, oats, and barley grew from 626,000 acres to 765,000—a growth of 22%. Over a similar period, the US livestock products industry—including dairy, meat, and eggs sold from farms to first handlers—increased from $1.2 billion to $3.3 billion, nearly a 300% growth.

The growth of organic grains and soybeans has not kept pace with the demand of the organic livestock industry. While many organic farmers do not grow for the feed market the gap between supply and demand can be attributed to the increase in demand from the feed sector.

The Organic Grain Collaboration emerged as an industry response to address, in a pre-competitive way, the main challenges in expanding the US organic grain supply. The initiative is led by the Organic Trade Association (OTA) and the Sustainable Food Lab (SFL) and involves organic food companies from across the supply chain.

This paper aims to identify various price management and investment mechanisms that are being used by supply chain actors and (financial) service providers in other sectors to support farmers. Desk research and semi-structured interviews with each company were conducted to inform the case studies. The analysis will serve as an input into discussions among participants in the Organic Grain Collaboration.

Three main questions will be answered that address key production and market risks facing US grain producers. They are:

1. How to overcome the 'valley of death' in the transition period?
2. How to bring a more stable price environment?
3. How to make US organic producers more competitive?

The report begins by identifying the main risks associated to organic transition and selected price management and investment mechanisms that can respond to such risks. It continues by analyzing four case studies to show these mechanisms can be applied. The review ends with an assessment of the relevance of price management and investment mechanisms to the US organic grain sector and general considerations for the organic grain sector when discussing what actions to take.

1. Producer risks in organic grain transition

Grain producers in the US operate in a volatile conventional marketplace. The market and production risks involved in grain commodities—price volatility, competitiveness, and cost recovery—are compounded when entering into the organic business. Moreover, grains (e.g. corn) can be produced in a short or long-cycle rotation with legumes (e.g. soybeans), which means producers supply more than one market and sell to more than one buyer. In this context, the following section describe factors internal and external to organic production that affect the market and production risks producers face.

Cost recovery

Organic grain production requires less inputs on a per acre basis than does conventional production but it is typically more expensive on a per unit cost than conventional due to increased management costs and lower yields, particularly in the first years of production. For example, established wheat producers incur 1.5 times the costs for organic compared to conventional.[1] Organic practices are more demanding than the conventional grain production model. Producers are required to use organic seeds, natural soil fertility methods like using cover crops as mulch, and non-chemical pest management. The application of these agricultural practices requires more time, effort, and a different skill-set. This translates into higher operational and labor costs. For example, weed control is a challenge in an organic production system. The use of smother crops like alfalfa can be effective in suppressing weeds but it is a practice that conventional producers in transition have to learn as they are accustomed to the use of different tools, such as herbicides in conventional production. Conventional producers, particularly those with decades of experience, may not be interested or have the patience if the benefits are uncertain.

The demands of organic practices are less attractive when a producer considers that productivity in the short- to medium-term is lower than in conventional production. Productivity is understood as the relationship of output (i.e. yield) to inputs (e.g. seed, fertilizer, pest management, labor) per acre of land. Organic production requires high level of management where total output per unit does not match that which a producer can reach with conventional production, particularly in the short-term. Organic soy and wheat production have been shown to be approximately twice the cost per bushel due to pest and disease management. After three years, yield can rebound to be 80% to 100% of conventional production as is the case in organic corn.[2] The productivity issue for organic grains is further challenged by the lack of technical assistance from crop consultants, USDA agencies and university extension specialists to assist producers in aspects like crop rotation and organic pest and weed management.

The business case for organic grain production appears risky when viewing it in the context of the 36-month from last application of a prohibited substance mandatory transition period. The higher comparative cost cannot be recuperated during transition as it cannot be sold as organic and receive the premium on the market. This translates into a 'valley of death' that requires a producer in a strong financial health to overcome. Furthermore, organic grain producers lack markets for rotational crops that provide critical functions (e.g. weed suppression, soil fertility). A medium-size farm (e.g. 2,500 acres) that survives this financially-difficult period can, by some estimations, turn a profit already in the third year due to organic premiums that are triple market prices. Cumulatively, this producer can begin to make a model net profit—accounting for the cumulative losses over the transition—by the fourth year.

Recently, there are attempts by the organic industry to promote a 'transitional organic' status to provide a market reward to support the 3-year transition. Despite the consumer label and potential higher prices, there seems to be no significant consumer market demand for transitional products. In the feed grade market, some companies are willing to purchase transitional grains in an effort to secure supply (e.g. dairy and egg producers).

Price volatility

Grains producers that manage to efficiently apply organic practices and effectively overcome the transitional valley of death are then faced with volatile prices for organic grains. Indeed, going organic is no guarantee of a stable market in the future. The premium for organic grains has increased to 2.5 times the conventional price since 2011.[3] Over the same period though, the price of organic corn, soy, and wheat gradually increased but then fell 15–20% from 2015 to 2016. Grain is a commodity and prices are unstable, whether for organic or conventional. Price volatility leads

1 Mercaris Market Data database. Obtained at https://mercaris.com/

2 Penn State Extension. Obtained at https://extension.psu.edu/organic-corn-production

3 Mercaris Market Data database. Obtained at https://mercaris.com/

producers, mainly producers who tend to have split organic and conventional operations to respond by adapting their production system to supply the more favorable market. When organic prices are consistently rising, there is a business case for organic transition if the producer steps into the organic market early. The volatility affects the viability of continued organic production beyond the short-term due to increased per unit management costs of organic production. Similarly, in times of strong conventional prices, the producer may be motivated to convert back to conventional but the producer would have to accept sunk costs of the initial investments made in organic transition and consider the cumulative effects on the bottom line.

When the relative net margins of organic vs. conventional grains are compared against the price premium of organic, it appears that the organic premium needs to be about 2x the conventional price for organic producers to stay in the market. In 2011, though the price premium was 1.5, growers left the organic market because the premium was not high enough to offset organic's increased per unit costs, the relative attractiveness of conventional production is higher than organic production. A premium of x3 seems to induce more rapid transition to organic; however, a x2 premium is the minimum to maintain steady levels.

Competitiveness

Obtaining the higher prices in the organic market by US grain producers is undermined by competition by foreign producers. Organic grains imported from overseas are cheaper than those produced organically in the US. Some of the 'competitive advantage' is due to foreign producers who have the relative advantage of cheaper land and labor per unit when applying organic practices and this is reflected in the ultimate price of imported organic grain. For example, foreign organic soybeans are a third cheaper than equivalent US organic prices. US organic grain producers need to respond through market mechanisms, likely through support from buyers, to stem foreign competition. The transition to organic production is attractive to the extent that producers can maximize net margins. If it is a challenge to reduce production costs, comparatively, then the most value capture is achieved through higher prices.

2. Overview of price management and investment mechanisms

Various price management and investment mechanisms can support producers in managing price volatility, ensuring cost recovery and become more competitive in the marketplace.

2.1. Typology

The table below presents an overview of selected price management and investment mechanisms that mitigate the main risks considered in this paper. These mechanisms are introduced with varying durations of contracts between producers and buyers to allow them to address the production and markets risks in a viable way. Cost recovery is a barrier to organic production due to the higher operational and labor costs incurred by implementing organic practices during the three-year transition. Price volatility is a risk, in general, with commodity markets and for organic grains after transition. Competitiveness is a challenge for US organic grain producers vis-à-vis their foreign counterparts.

Typology	Mechanisms	Risk mitigated	Description
Commercial	Cost-plus pricing	Price volatility	A price leverage based on the costs of production with a reasonable margin added
	Fixed premium	Cost recovery	A price leverage that is a fixed amount per unit in addition to the market or negotiated price to reward a specific change in production by a producer (e.g. organic transition, sustainability, performance)
	Flexible premium	Cost recovery Price volatility	A price leverage that is a variable amount per unit in addition to the market or negotiated price. It can be based on market fluctuations and/or a buyer's own framework. It rewards a specific change in production by a producer (e.g. organic transition, sustainability, performance)
Service (financial)	Flexible loan repayment	Price volatility Competitiveness	An input-based leverage with variable repayment terms that take into account fluctuations in the market of the producer's core activity. It allows a producer to invest in performance resulting in reduced costs and/or greater output

Cost-plus pricing

Cost-plus pricing refers to a sourcing model that focuses on the supplier's costs of production (actual or average) rather than the product's market prices. The model can be designed to respond to a supplier's fixed cost structure or variable costs associated with the supplier's own raw materials. Based on this understanding of production costs, the buyer and supplier agree on a reasonable margin to be paid in addition to a product's cost-based price per unit. It requires a buyer to have a close relationship with the producer and transparency on their cost structure. Therefore, it is more applicable to mid- to upstream companies and those vertically integrated. The cost-plus pricing is widely used in contract farming arrangements. Multi-year contracts can also feature in this model.

This model is used to mitigate, from a buyer's and producer's perspective, volatility in a product's price.

Fixed premium

Fixed premiums are a price mechanism used by buyers to reward a specific change in production by a producer (e.g. organic transition, sustainability, quality, performance). It is a fixed amount per unit in addition to the product's price during an agreed period, typically a year or production season. The use of a fixed premium can be used in combination with multi-year contracts or, at least, demonstrates a buyer's commitment to support a producer over the medium-term.

This model is used to recover a producer's additional costs associated to the desired production changes and allows them to capture more value than the mainstream market would bear.

Flexible premium

Premiums can also be flexible. This mechanism similarly rewards changes in production practices but with a variable amount in addition to the product's price. Flexible premiums are then based on market fluctuations and/or a buyer's own framework. If the market price falls below a certain threshold, then the premium is adjusted to a value higher than the base figure to partly fill the gap. If the market price increases, then the premium is reduced. This mechanism can also be designed to determine an amount in relation to the producer's performance on certain criteria—productivity, efficiency, quality, and/or sustainability—set by the buyer, for example through a points system. Based on the buyer's framework, the more points scored in certain thresholds across criteria can translate into a higher premium in addition to the producer's sales price.

This model is used to recover a producer's additional costs associated to the desired production changes and allows them to capture more value in relation to the market. Flexible premiums allow a buyer to share market risks with the producer and to create incentives for the desired performance changes at the production level.

Flexible loan repayment

A flexible loan repayment refers to a line of financial credit that a producer can take out that ties repayment terms (amount, time schedule) to the market prices for their product. If the market price falls below a certain threshold, then the loan repayment is adjusted to a lower amount and longer time schedule than the baseline terms. This flexible mechanism then allows producers to maintain sufficient cash flow encouraging them to invest in the performance of their business. As a financial service, a flexible loan is complimentary to the commercial terms of trade that producer and buyer engage on.

This model is used to provide cash flow relief to the producer during market volatility. It encourages producers to invest in their enterprise allowing them to be more competitive and reap the returns of the investment. It allows the loan provider to enter new financial markets and ensure priority repayment in relation to a producer's output.

3. Case studies

Four case studies have been identified that illustrate how price management and investment mechanisms can support producers in managing production and market risks. All the cases occur in the dairy sector. There has been considerable development of milk processors and brand manufacturers supporting dairy producers with innovative mechanisms due to the end of the European milk quota system in 2015. This change in regulation paved the way for the sector to intensify production (i.e. more cows, more productivity per acre) and increase overall output. Thus, the dairy sector, although producing a single type of product, shows relevant experience, particularly across multiple mechanisms, that the US organic grain sector can learn from.

An overview of the cases is presented in the table below followed by an in-depth description and analysis.

Case	Mechanisms	Context and purpose
Danone	Cost plus pricing	To protect milk producers from price volatility of raw materials (e.g. soy and corn for feed) To improve performance on productivity and efficiency
Organic Valley	Fixed premium	To support milk producers in cost recovery associated with organic transition
Friesland Campina	Flexible premium	To improve performance on quality and sustainability
Glanbia	Flexible loan repayment	To support investment by milk producers in performance and respond to volatility of milk prices

In addition to the case studies, other organizations were consulted on their experience with the same price management mechanisms as well as investment more broadly in a company's supply base. These organizations include:

- **Rogers Family Company:** owner of several coffee and tea brands who applies cost-plus pricing to private label products for Costco, a large wholesaler and retailer in the US
- **Kashi:** a brand manufacturer of breakfast cereal, crackers, and cereal bars that is owned by Kellogg who pays a transitional premium via grain processors
- **Craft3:** a nonprofit community-based lender in northwestern US who develops innovative financial products for small to medium-sized organic farms

3.1. Danone—Cost plus pricing

CASE INTRODUCTION

Danone is a French multinational brand manufacturer that is active in the yoghurt, bottled water, baby food and medical nutrition sectors. In the dairy sector, the company is a raw milk processor and directly sources from dairy producers

Mechanism used

- Cost plus pricing to individual producers and producer groups
- 5-year contracts

Sector applied

Dairy in the US, EU, and Russia

Beneficiary reached

The company offers the cost-plus pricing model to approximately 200 raw dairy producers, often family farms, and at least 2000 farms organized in producer groups

Design

The model sets the raw milk purchase price taking into account changes in the supplier's raw material costs (e.g. soy and corn for feed), which can vary greatly. If the price of corn increases, Danone will raise the price at which they buy milk. Suppliers are paid a guaranteed fixed margin (%) on top of the variable production costs under a maximum price ceiling. Margins are set based on negotiations with individual producers. This arrangement allows producers to focus on milk production and, in return, they commit to be a reliable, efficient supplier for Danone.

Danone has full transparency on the costs of production of individual producers. They enter into 5-year contracts with these suppliers with whom they agree, at the beginning of the relationship, on a farm management plan to improve performance on productivity, efficiency, and cost reduction over the duration of the contract. Producers are supported with technical assistance provided directly by Danone or a relevant external body, which is covered by Danone as a cost of production. The trading relationship allows producers to access finance to invest in their dairy farm.

In the case of producer groups, Danone has developed production indexes based on relevant local or national data to assign a proportion of specific input costs (i.e. labor, feed, equipment, nutrients) to the overall production cost structure. The production costs are averaged for each producer group—based on a sample

on members—to determine the milk purchase price. This calculation of average production costs at the group level is more precise yet more tedious than Rogers Coffee's approach which is to average costs across an origin country or sub-national region. Danone enters into contracts with groups with a minimum duration of 3 years due to lower transaction costs and less risk of supply default and producer insolvency. Within the producer group, members determine how they will collectively meet the cost reduction and productivity targets agreed with Danone.

Each year there is a review of production costs and assessment of progress towards reaching the performance targets.

Benefits

The flexibility of this model removes the volatility involved in raw material procurement for the raw milk producer. This way they are not stuck with the burden of assuming higher production costs without relatively attractive milk sales price. Producers enjoy stable trading relationships that give them technical assistance to improve efficiency and confidence to invest in farm performance over the long-term.

By offering a market-based model and a long-term relationship, Danone secures their supply needs (volumes, quality), informs business planning, and attracts the next generation of (more efficient) dairy producers.

CONDITIONS FOR SUCCESS

- A common interest and shared objectives exist between the buyer and supplier
- A producer mindset that focuses on farming and long-term investment
- Quality technical assistance is available to the producer

Key insights

» A focus on cost can inform fair prices for producers

One of the challenges of trading in products that are influenced by commodity markets is to calculate and pay a fair price to suppliers. Commodity exchanges do serve a purpose of price discovery and trading efficiency. At times, imperfect information and speculation though can lead to market prices that do not sufficiently cover the costs of production. By basing price on their milk supplier's costs plus a reasonable margin, Danone ensures that the producer consistently receives a fair price. Danone also maintains the viability of their own business by setting a ceiling purchase price (based on historical average production costs) and controlling part of their own

production costs that will later inform the sales price of their yoghurt products.

» Developing a farm management plan can improve a producer's performance and ensure a buyer's return on investment

In a competitive retail market, cost reduction is imperative. Cost-plus pricing involves direct and stable relationships that invest over the long-term. By engaging in direct and stable trading relationships, Danone recognized the importance of a management tool as a way for new and established producers to meet Danone's expectations on productivity and efficiency while offering stable prices.

» Aggregation of producers can reduce transaction costs in cost plus pricing

Direct sourcing from individual producers is costly independent of how the buyer manages price. The set up and management costs involved in a cost-plus model is greater due to the detailed review of production costs and close monitoring of performance involved with small-scale suppliers. Danone found that the organization of individual producers into groups allows them to reach an economy of scale that is worth the cost of doing business. The accuracy of production indexes based on average costs is an important factor for Danone in determining the cost-based price.

3.2. Organic Valley—Fixed premium

CASE INTRODUCTION

Organic Valley is a US farmer-based cooperative and brand that produces organic milk, soy, cheese, butter, spreads, creams, eggs and produce. In the dairy sector, the company is a raw milk processor and directly sources from its dairy members.

Mechanism used

Fixed premium for organic transition to members

Sector applied

Organic dairy in the US

Beneficiary reached

The cooperative has reached some 900 of its 1,800 dairy farmers since many were already cooperative members before the incentive program was launched

Design

Organic Valley operates a classic organic transition premium that is differentiated based on heifer transition versus herd transition. For example, a farmer can transition a whole herd of cows, including heifers, or if a farmer is not already milking they can buy in new heifers to transition. When transitioning an existing herd or heifers, dairy producers are paid premium per hundredweight above the non-organic milk price during the twelve months of transition (i.e. feeding). Organic Valley will determine the transition price paid to a farmer for herd transition based on the length of commitment a farmer is willing to make. For heifers, price is determined by both the length of commitment, and the predicted productivity of the type of cow. In fact, an existing herd transition is three years if one takes into account that Organic Valley members have to transition to organic grain production for feed, which most produce on their own. This cost is not supported by Organic Valley. When transitioning a herd of heifers that is costlier, a producer is paid a USD $3.50 premium per hundredweight and they commit to supply Organic Valley over a longer-term (i.e. 30 months). There is a six-month notice period that producers must give Organic Valley if they decide to not continue in the transition program. In both situations, the transition premium is not intended to cover all costs of going organic.

Dairy producers are supported with a range of services like technical assistance on milk and feed quality, certification process, marketing and communications.

As a cooperative, Organic Valley is in a position to apply the transition premium in combination with fixed prices that are determined by its board and offered over a period up to one year.

The premium is included into the price paid by buyers in retail and hospitality sectors, including brands like Stonyfield and General Mills.

Benefits

The transitional premium assists producers in paying some of additional production costs and can be applied to the organic certification audit.

By offering the transitional premium, Organic Valley can support new members as they convert to organic production securing supply and informing business planning.

CONDITIONS FOR SUCCESS

- Guaranteed procurement and supply commitments
- A producer's willingness and commitment to invest

Key insights

» A transitional premium in combination with a fixed price can ensure a producer's cost recovery with some price stability

Most premiums paid during transition are fixed. Moreover, producers are still exposed to volatility in the market. Taken together, this can damage a producer's business case for going organic if not managed well. The fixed premium supports in cost recovery during the three-year period. Organic Valley's annual pricing gives members stability in the short-term and is considered to be a fair price since it is set and agreed by members. At that the same time, annual price-setting allows Organic Valley to be more market-oriented as it grows. This combination of medium-term premiums and short-term fixed prices give producers good visibility to plan their business accordingly.

» Clear and fair contract terms can ensure fulfilment of a supply commitment

Clear and fair contract terms are the cornerstone of any mutually-beneficial trading relationship. In agricultural value chains, weather and market factors can

pose a challenge to contract fulfillment. As the transitional program developed, Organic Valley found it valuable to prepare precise contracts in terms of output and commitment length, notice period, force majeure, etc. to counteract market changes and ensure milk deliveries as expected.

3.3. Friesland Campina—Flexible premium

CASE INTRODUCTION

Friesland Campina is a Dutch farmer-based cooperative and brand that produces dairy-based products and ingredients. The cooperative is a raw milk processor and directly sources from its dairy members.

Mechanism used

Flexible premium for quality and sustainability performance to members (Foqus planet)

Sector applied

Dairy in Netherlands, Germany and Belgium

Beneficiary reached

All 18,000 members participate in Foqus planet

Design

The Foqus planet program has four main themes: company, cow, feed and milk, which are reflected in three performance pillars: basic requirements, sustainable development and outdoor grazing.[4] Those producers that do not comply with the basic requirements are given four weeks to resolve it.

The main feature of the sustainable development premium is a points system that scores a producer's individual performance thereby rewarding those members with high performance in targeted areas. This design differs from that of the flexible premiums proposed in the cocoa sector that are based on the international market prices and paying the same variable amount to all producers in a company's supply chain.

The figure below represents the main design features.

Points	Cow Lifespan	Somatic Cell Count X 1000 C/Ml	Calf Rearing Score	Energy Consumption kJ/kg Milk	Nature and Landscapes % Total Area
40	> 6 years, 8 months	<125	91–100	<700	–
30	6 years, 1–8 months	125–164	81–90	701–899	Management agreement >5%
20	5 years, 4 months–6 years	165–204	76–80	900–1099	Management agreement 1–5% or self-declaration >1%
10	4 years, 8 months–5 years, 3 months	205–244	70–75	1100–1300	Management agreement or self-declaration <1%
0	<4 years, 8 months	>244	<70/ unknown	>1300/ unknown	No management/ unknown

Source: Foqus planet brochure 2018. Further information at: https://www.friesland-campina.com/en/quality-and-safety/foqus-planet/

In the sustainable development pillar, there are five measurable indicators: cow lifespan, calf rearing, somatic cell count, energy consumption, nature and landscapes. There is a maximum of 210 points possible in the scoring system. For each of the five indicators, 0–40 points are possible to earn in relation to the producer's performance. By 2017, each producer must meet a minimum of 40 points across at least three themes.

The premium amount per point is derived by taking the total sustainable development points earned by all members by the average volume delivered. Once

4 Grazing is also rewarded with a premium but is assessed separately than the points system described. The main motivation to offer a premium was to increase the number of grazing days for cows to anticipate Dutch public policy and present a positive image to the public.

calculated, this premium per point is then applied to each producer's score to determine the amount of their individual premium and the corresponding deduction from the milk price.

This flexible sustainability premium is financed by a deduction of 0.25 euros per 100 kg on milk delivered by all producers. Participation is mandatory for all members.

Benefits

Dairy members are supported in taking good care of their cows and producing high quality milk. They are rewarded financially for their additional work and individual performance on sustainable development and grazing.

Friesland Campina can further motivate their dairy members to produce results on quality and sustainability. Cows that are disease-free and living long lives can producer higher quality milk. The environmental results benefit society and Friesland's environmental goals and reputation towards their buyers and consumers.

CONDITIONS FOR SUCCESS

- Mandatory participation by all dairy members
- Transparency on the business case for producers

Key insights

» Premiums can be used for broader sustainability objectives and continuous improvement

Transitional premiums are a practice-based incentive. Friesland Campina demonstrates that the premium mechanism can rather be designed to incentivize performance and outcomes. In their case, they require cooperative members to meet specific quality and sustainability metrics through a process of continuous improvement that recognizes varying producer willingness or ability.

» It is advantageous to introduce pricing mechanisms when the market is high

Agricultural producers like many people are unwilling to change unless it is attractive and the benefits tangible. Friesland Campina found that there was considerably low resistance by members because Foqus planet was launched the requirement for them to improve while the milk market was strong.

3.4. Glanbia FlexFund—Flexible loan repayment

CASE INTRODUCTION

Glanbia is an Irish processor and brand that produces dairy-based products. The company is a raw milk processor and directly sources from dairy producers. It partnered with Ireland Strategic Investment Fund, Rabobank and Finance Ireland to develop an innovative financial product called the FlexFund

Mechanism used

- Flexible loan for dairy suppliers (current). Borrowers have a supply contract for the loan's duration
- Flexible loan for non-suppliers (soon to be launched)

Sector applied

Dairy in Ireland

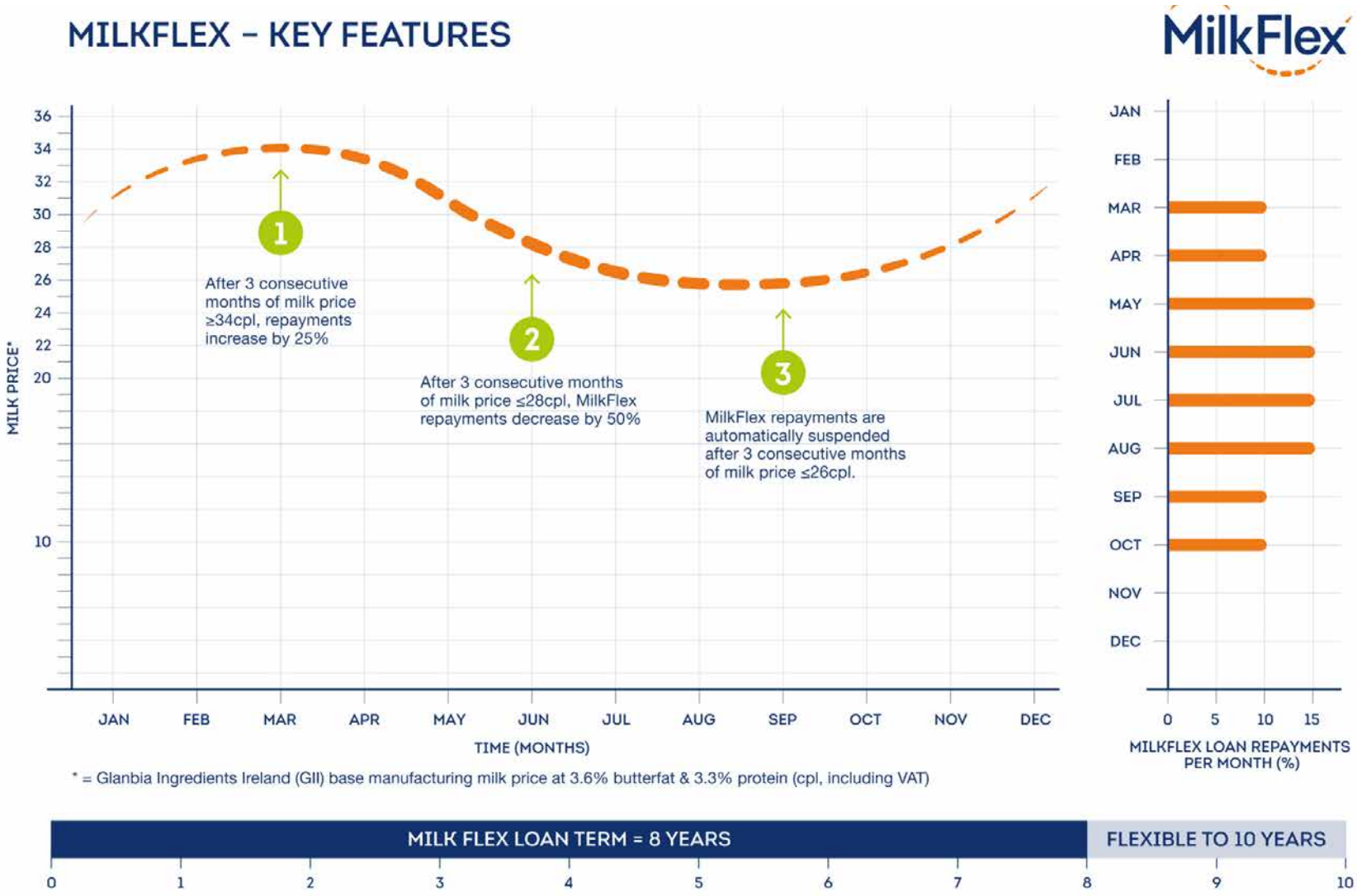
Beneficiary reached

Of €110 million requested in loan application, €64 million has been dispersed. Unclear the number of producers this figure represents

Design

The main feature of this investment mechanism is that it builds in 'flex triggers' adjusting repayment terms in line with Glanbia's manufacturing milk price, thereby providing dairy producers with cash flow relief.

The figure below represents the main design features.



Source: http://www.agriland.ie/farming-news/glanbia-launch-new-cheap-loan-fund-heres-how-it-works/

The flex triggers occur when the price is:

- below 28 cents per litre (including VAT) for three consecutive months, there is a temporary reduction in loan repayments (e.g. half of the principal and interest planned)
- below 26 cents or if there is a disease outbreak affecting milk output, there is a moratorium on loan repayments for six months
- above 34 cents, there is an increase in loan repayments

Price thresholds are based on calculating average production costs, normal quality bonuses, and sufficient cash flow.

The producer's loan is repaid through automatic deductions from Glanbia's purchase price and follows the production curve with no repayment in low milk production months.

The other central feature is that loans are unsecured, which has several advantages over secured loans. First, the producer's assets (e.g. land) are not promised and cannot be seized in case of default. Second, the approval process for unsecured loans is quicker and cheaper as it involves less legal review. The interest rate charged is a variable rate of 3.75% above the monthly Euribor cost of funds. Compared to other unsecured loans, FlexFund's interest rate is competitive and this is due, in part, to the efficient infrastructure that the partners have put in place.

The loans have a standard term of eight years (assuming an average price of 30 cents per litre). They can be extended due to repayment moratoriums by up to a maximum of an additional two years. Borrowers must be active suppliers of Glanbia for the term of the loan.

The FlexFund is managed by Rabobank and Finance Ireland and Glanbia has no involvement in the approval of loan applications. Loans of between €25.000 and €300.000 are offered but the average amount to date is €97.000.

Benefits

This flexible loan supports existing and new dairy producers to overcome market-related cash flow limitations to invest in their farm and meet intensification goals over the long-term.

Glanbia is able to secure the milk supply needs expected as they build additional processing capacity. The company has acted as an innovator in the sector (e.g. fixed prices with medium-term contracts) and understands the ripple effect that a leader can cause on the sector as a whole.

CONDITIONS FOR SUCCESS

- Due diligence on producers' demand and characteristics before creation of the fund
- Producers that have low levels of debt to apply for an unsecured loan

Key insights

» Financial mechanisms that build in flexibility in relation to market dynamics allow producers to maintain sufficient cash flow and encourages investment

Traditional financial institutions apply a standard formula when assessing the potential of default by a borrower; the borrower's capacity to repay a loan principal and interest according to its terms, business assets, personal collateral, and the borrower's reputation. The market dynamics of a producer's business that inform their repayment ability are largely excluded from this risk analysis. If a producer succeeded to take out a loan during favorable market times, they can be left high and dry with major cash flow problems when the market turns. The Flexfund partners—a milk processor and retail and wholesale financiers—recognized this fundamental exclusion and developed a pragmatic mechanism that overcomes this barrier. Glanbia can ensure that its suppliers have the resources to invest in their dairy farms. Producers can act on their interest to invest and be protected against (international) market volatility maintaining sufficient cash flow. Lenders can reach an entire new market segment that was previously excluded.

» Financial innovation can include applying wholesale finance techniques to the retail space

Retail financial products for producers typically are debt-based (e.g. bank loans). Wholesale financing to processors involves equity. The FlexFund took this lesson from wholesale financing and decided that Glanbia would have equity in the investment mechanism.

» **Frontrunner companies with vision to look beyond their own supply chain can make a difference for a sector as a whole**

Some companies lead by example even if commercially risky. Glanbia is known in the Irish dairy sector for innovation. It had been the first to offer fixed price contracts based on cost-plus pricing and soon other milk processors followed. The FlexFund began as a pilot and shortly proved to be successful at scale. A second fund has been developed that will be available to all milk producers in Ireland and does not require applicants to be a Glanbia supplier. This new fund will expand its scope to include sustainability criteria like climate change mitigation. Launch is expected in Spring 2018.

4. Conclusions

The price management and investment mechanisms presented in the case studies are relevant to the US grain sector since they are used in other sectors for precisely the same risks facing organic producers: cost recovery, price volatility, and competitiveness. In the context of growing organic demand, some of the mechanisms' design features and conditions for success could be considered to promote organic transition among grain producers, either as a replacement or complement to the transitional premium mainly used today.

4.1. Relevance of mechanisms for US organic grains

Overcoming the valley of death in organic transition

The main obstacle facing the promotion of organic production is the cost of transition and delay in market reward. Premiums are a straightforward incentive to support producers regarding the costs of converting to organic production. A fixed premium largely removes the financial barrier to implementing organic practices that incur higher operational and labor costs during the three-year transition. This financial support fills the gap of no reward in the marketplace. The flexible premium used in the case of Friesland Campina, although to meet broader quality and sustainability objectives is based on individual performance. Organic buyers could design flexible premium mechanisms to reward differentiated performance, including efficiency targets, which could lead to cost reduction during the three-year transition period. Altogether, premiums are a good reward that supports producers to overcome the valley of death but it does not address price volatility they remain exposed to after transition. The strength of the organic market and its premiums are no guarantee and may not be provide for viable organic production.

Since becoming an organic producer is an investment in the future, cost-plus features can be more relevant than premiums for transition. Cost-plus can build in access to finance to the offer, which provide a guarantee to the bank to be paid through the contract's conditions and negotiates an interest rate that is possibly more favorable to the producer. This service allows the producer to invest in their enterprise than a purely market-based reward like a premium.

Enabling a more stable price environment

The volatility of grain prices in commodity markets deters producers from going organic and persists after the valley of death. Protection against market volatility is provided by government intervention in some commodities in other contexts. Companies can be effective in supporting producers against this risk in their own supply chains, whether through or outside of the market. Cost-plus pricing is particularly effective as the purchase price is de-coupled from the market. Cost-plus

ensures stable prices since it is pegged to production costs and that the guaranteed margin allows a producer to protect their margin. This predictability can allow them to not be forced to adapt production between organic and conventional in relation to the market but continue on the path they choose. To be sure, this mechanism's protection against price volatility would benefit grain producers independent of organic ambition or not.

Flexible premiums also appear to be relevant, particularly after transition to organic. This mechanism can be designed to reflect changes in commodity market prices. A series of thresholds can be determined in relation to the market and the corresponding premium follows the thresholds giving producers stable, good prices. In other words, as the market price falls, the flexible premium responds and increases.

A flexible loan mechanism is also relevant in the context of market volatility. It responds to this risk since the repayment terms are linked to market prices giving producers cash flow relief, which is the same effect a producer seeks with a stable price environment.

Other mechanisms exist to manage price volatility that are not discussed in this paper. Producers can engage in forward contracting with buyers and apply hedging strategies like buying price insurance or options.

Making US organic producers more competitive

Competitiveness is a substantive challenge and area of attention facing the promotion of organic production in the US. Strategies that strengthen competitiveness should be developed, possibly at the sector-level in a multi-stakeholder setting that increase productivity and efficiency and consider market positioning. Productivity and efficiency through farm management plans have been shown to be important features of cost-plus pricing models. Also, performance-based flexible premiums can incentivize producers to attempt new practices, become more efficient and improve agricultural conditions like soil fertility. This focus leads to innovation, cost reduction and higher yield and quality translating to higher net margins during and after organic transition.

To counter foreign competition, US organic grain sector could pursue higher value (food) markets as a strategy. Despite the significant organic feed demand, the objective could be to target upscale US food market segments. In combination with efficiency activities, organic producers could command significantly higher net margins through price gains and cost reduction. To support producers in becoming more competitive, buyers would have to develop closer relationships and facilitate or provide adequate, quality technical assistance when needed by producers. This way the industry can be more resilient in the context of strict US organic production standards and improve traceability of foreign organic products.

Access to finance is critical to enhance competitiveness. The flexible loan designed by Glanbia and financial partners contains some features that are relevant for the US organic grains sector. The improved productivity and quality resulting from greater investment strengthens a producer's position against national and international competitors. While flexible loans are a concrete example and other options could be explored. For example, buyers could consider putting equity into producer loans to de-risk them. Loan loss reserve funds by third parties can reduce risk for regional banks and credit unions to extend credit to producers. For beginning small-scale producers, savings match programs can be a service-based incentive. Increasingly, institutional investors are buying land in partnership with producers of permanent crops (e.g. nuts and berries) with the aim of organic production. In their view, the value of such real estate will increase over the medium term due to the ecological benefits of organic practices for the land.

4.2. Final considerations

All-in-all, mechanisms like cost-plus pricing, flexible premiums and flexible loans appear to be very relevant to the US organic grains sector. In particular, flexible premiums and flexible loans address cost recovery and competitiveness over the medium to long-term through higher net margins derived by productivity and efficiency gains. Cost-plus pricing and flexible loans may support organic producers in becoming more resilient to commodity market cycles.

It is important to consider some technical and social conditions, in general, for these mechanisms to be effective:

- Stability in trading relationships through long-term contracts
- Transparency on the business case for organic production
- Due diligence on producers' characteristics and demand for the supporting mechanisms
- Availability of quality technical assistance
- Common interest, shared objectives, and mutual financial commitment
- A producer mindset that focuses on farming and long-term investment

Efficient organic production, particularly during transition, requires external support and market stability. Stable trading relationships can provide several technical benefits like technical assistance, farm development planning and market signals to invest in their farm. However, a major challenge is that producers grow more than

one crop. A key to success then is the extent that incentive mechanisms address the farming system as a whole. This may require a re-think of some buying companies' sourcing models to consider a producer's multiple crops and collaboration between different buyers.

The effectiveness of most incentive mechanisms can also be strengthened by factors that are more relational or social such as shared objectives, transparency, and long-term perspectives. In this sense, the buyer who is interested in securing more organic grain supply genuinely considers the producer's objectives. Similarly, the producer respects the opportunities and constraints faced downstream. Transparency can help bridge this divide. Producers can be open on current production costs and potential increases due to organic transition. This allows for a fair negotiation on margins that reasonable for both parties. Producers must also come to understand the opportunity in the organic food market and consumer requirements. A departure from a short-term mindset would lay the foundation for shared growth. If technical aspects like margins, productivity, and access to services can be assured, then the remaining key to unlock is the attitude of value chain actors. Taking a long-term perspective (within competitive constraints) would allow companies to develop and implement a growth strategy and support producers to focus on better (organic) farming and the investment required for that better performance.

A few price management mechanisms—cost-plus pricing and flexible premiums—warrant further research and discussion. A focus on production costs rather than higher prices via fixed premiums could be central to promoting organic transition, particularly in isolated supply chains. This focus is more producer-centric, informs more accurate prices, and is a more viable incentive over time. These attributes are then compelling for a model to be scalable, however, are limited in contexts of high crop rotation and multiple buyers. Contrary to fixed premiums, flexible market rewards could be a potential medium-term solution and that could be applied by a majority of organic grain buyers and, therefore, move a producer base to transition at scale. Research and discussion is needed on the applicability of these mechanisms to the US organic grain sector and feasibility across a supply chain (from up to downstream). Also, other aspects of pricing models like minimum and maximum purchase commitments (e.g. rolling horizon flexibility or RHF contracts) could be explored. Pre-competitive discussion on the methods used in pricing mechanisms and piloting in companies' supply chains will lead to learning and, ultimately a proof of concept. This type of discussion and knowledge sharing can be enhanced when done across relevant sectors and with a broader set of stakeholders.