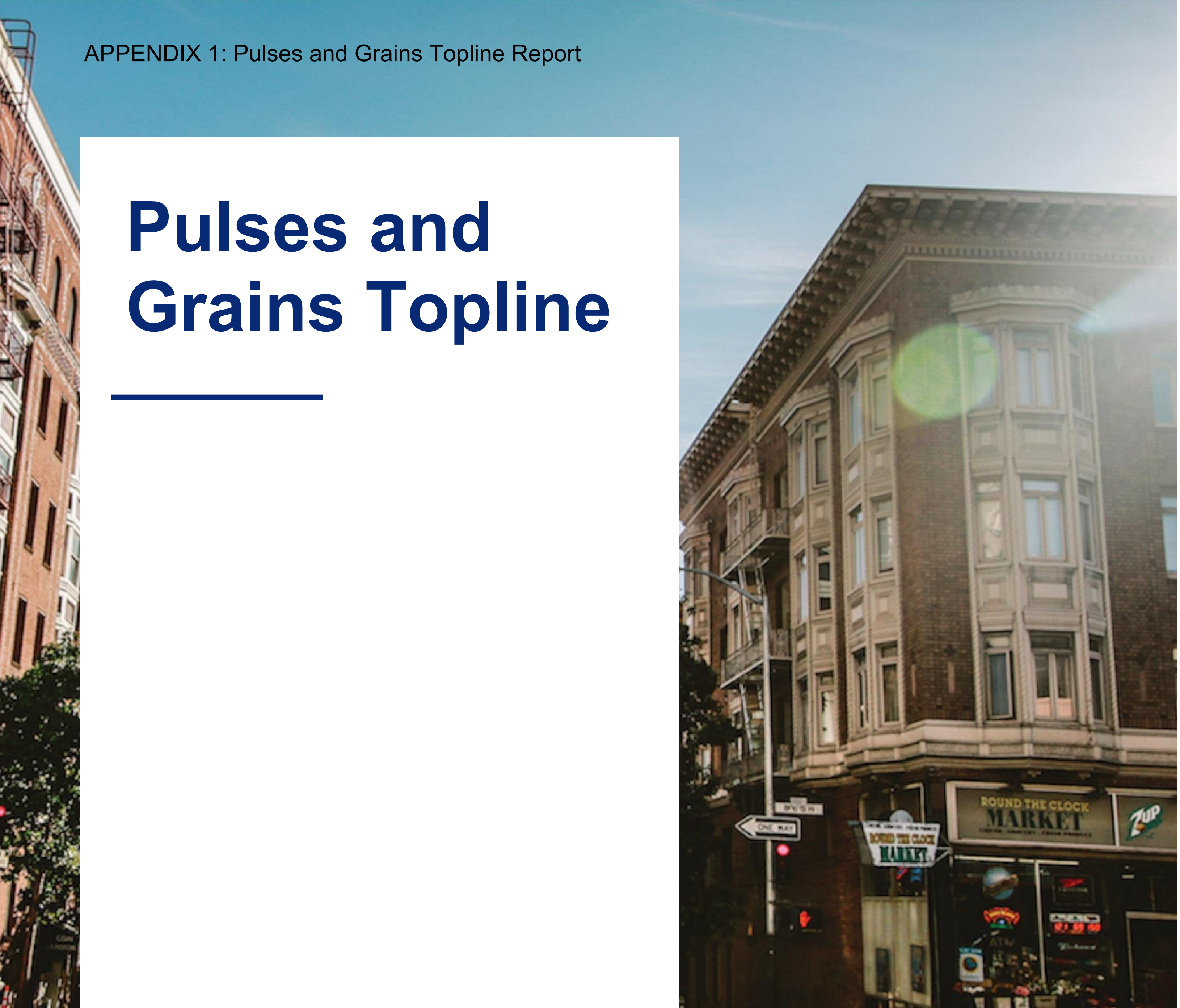
DATE 27/06/2019

# Speciality Grains & Pulses – Appendices

Leftfield Innovation Limited

# Appendix 1: Pulses and Grains Topline (Consumer Insights Report)




# Pulses and Grains Topline

JUNE 26

**PSL**
**Authored by: Briar Harland**

pinstripedleopard

# Pulses and Grains

## Initial Explorations

Left Field Innovation have a belief that NZ grown pulses and grains are a distinct opportunity – initially as raw product but also as a saleable opportunity when value has been added.

Much of the information Left Field Innovation needs to know is held in various stakeholders' minds and behaviours and we needed to find a way of being able to tap into this effectively (and cost effectively). This means used a stepwise approach so that various stakeholder information could inform subsequent interviews.

This summary is based on:

- 1 x distributor interview
- 14 x business to business interviews (retailers, manufacturers and influencers)
- 1 consumer focus group (pulse and grain purchasers)

Interviews lasted between 30 mins – 1 hour and the group was 2 hours in duration. Participants were paid appropriately for their time. 1 asked for their incentive to be donated to charity and this was done.

Interviews were conducted in June 2019.

***"There's no doubt people are heading toward these types of things. Plant based eating is it."***

# General comments

All participants believed plant-based eating / inclusion of pulses and grains in products was an increasing trend.

B2B participants were clear that consumers don't tend to lead these trends – they say they are influenced by chefs, dieticians/nutritionists, food influencers, magazines etc.

- Can be very 'fad' oriented (e.g. chia) however many pulses/grains not part of the fad phenomenon – they either are or have become staples / mainstays.

Across interviews there was a sense of pulses being steady / slowly increasing:

- Chickpeas now a staple of many products and increasingly being used as an additional ingredient in soups, snacks etc.
- Beans as showing strong growth with the growing popularity of ethnic cuisines (Mexican impacting particularly) – hampered by global shortfalls of product (particularly organic).
- Soybeans as restricted for importation + constant and steady request by customers:
    - Increasing with diversity of NZs population.

Grain conversations depended strongly on the grain in question:

- Oats were said to be steady and high volume – with growth in demand for steel cut.
- Quinoa is high volume but getting some speed wobbles.
- Millet is 'steady' – but weevils in summer an issue, and not particularly consumer friendly / well known.
- Teff is barely known (exception areas where there are Ethiopian migrants).
- Amaranth is largely unknown and 'not an easy grain' – low demand but pops up now and again if there's something in the media.
- Rye is wanted as flour – with good demand.
- Spelt is wanted as flour (increasing demand).

Taste and ease was reported to be the over-riding element to constant use – with a sense that these products are fundamentally neutral meaning that flavor needs to be added. Taste aside, it was suggested that the health benefits alone make trial desirable, however if a lot of work is required to have a consumable product then the appeal is always lessened.

There were also comments that there is a degree of seasonality with some consumer groups, with some particular pulses and grains (e.g. more pulses in winter) – however where there is an ethnic component then purchasing was reported as steady (e.g. Lentils in Indian communities). Where there is a use component that is European traditional then it was reported that there is seasonal purchasing (e.g. winter soups – pulses).

There were many comments regarding hemp – with several participants suggesting it is 'the next big thing'. Those that sell hemp say they can't keep up with demand and those that use hemp to manufacture products stated they can't get it within NZ in the quantities desired

- Some wondering if this is just another fad however
- There was a belief that growers are rapidly trying to fulfill demand meaning that supply may soon be plentiful.

Hemp was mentioned in nearly every interview, and several believed that it is 'the protein of the future'. It is certainly worth adding into consideration based on participant commentary.

When interviewing it was clear that when we hit a 'NZ' interested participant then everything fell into place, however a surprising number of participants were not in the least bit interested in NZ grown offers unless cheaper AND more easily available. With these participants there was a sense that price trumped provenance with this type of product in many instances. Consumers in the focus group tended to support this view.

B2B participants gave clear advice of knowing your target (with them assuming end consumer) – our sense is that the target is actually the retailers and manufacturers for whom NZ adds a benefit (and there could be a lot of tail chasing about volume/pricing with the wrong target).

# Retailers

Retailers (of all types) reported that the demand for pulses and grains was steady and /or growing depending on the product under discussion. Retail participants stated that people are eating more plant-based choices for health reasons but also because they are relatively cheap vs. meat.

## LARGE RETAILERS

Large retailer conversations suggested that price is the driver and customers have limited interest in NZ grown product if it is not price competitive with imported product – indeed the participants indicated that people did not even appear to notice country of origin if it was present on labelling.

Buyers/category managers said that they didn't believe NZ provenance added 'anything that special' to this type of product (unlike product where fresh matters such as produce) – and reiterated that consumers really don't care for anything except price and availability. They indicated that NZ grown is 'nice' but not essential. They also indicated that they believe their offer is 'fine' as stands.

Retail participants of this type of store suggested that they were not fielding much demand for more than they have to offer now. They did say they would respond if demand increases (as it does at times depending in trends) but believe 'the core range is covered'. (We suggest that consumers who are strongly motivated by pulses and grains may be using other types of retailers to fulfill their requirements of specialist products however).

Supply chain requirements means any new entrant would need to demonstrate better value for the retailer than existing contractual arrangements. They were not interested in more brands in this space, and indicated that they were more likely to want to fill requirements of own brand or pick and pack. To be considered a new supplier would need to price lower than existing suppliers or add value in a meaningful way in order to be considered.

There was also comments around suppliers needing to meet volume requirements – which they have not typically not been able to achieve within NZ at a national level, on a consistent basis, as yet.

Participants were not interested in dealing with multiple small growers – they felt it was easier for them to have relationships with large volume growers across the board or well set up intermediaries. They reiterated that even If volume could be met there would still have to have a price advantage.

Any importation / supply headaches have largely removed by supply chain management – they tend to put the onus on others to meet requirements therefore are not overly disturbed by them. Stores have set products (core range) and there is limited flexibility beyond space. They stated they have a large list of requirements in terms of quality controls, moisture readings, storage etc.

Puffed and popped offers were also discussed – and while the overall reaction was mildly positive there was a belief that there is enough in this space already, and likely more in the wings. If the offer was novel/unique/exclusive and appropriately packaged then they may consider it but would need proof of concept in the first instance. A couple of participants mentioned they believe if it is truly popular it'll probably come out of another Country first and we can pick it up from there.

When discussing the Protein concept there was mild interest, however they failed to see the difference to current pea protein offers in the market, and were not impressed by the uptake of such products vs. whey-based offers / less expensive products. There was a comment about not wanting to have a proliferation of offers in this space with no advantage because it just takes up store space and doesn't grow the category – new offers just fragment purchasing. Participants of this type of store also couldn't see a plant protein offer as being mainstream – they felt it was very niche.  They reiterated that proof of concept would be critical to get consideration.

**Overall impression: A lot of effort and a lack of certainty – not a primary target.**

Owner/operator / franchise stores appear to have more flexibility and are able to work with local suppliers.  There would be a need to create relationships with store owner / buyer / category manager for store and work with them to establish requirements and expectations.  Each store sees to its own requirements and there is a recommended core range – though approved suppliers may be listed (if appropriate) so that stores can draw on the buying power of the group.  Different catchments have different needs, and you would need to work with stores to create relationships and evaluate needs on a case by case basis. Buyers in these stores anticipated that the biggest demand would be in higher socioeconomic area stores.

Buyers in this type of retail suggested puffed and popped were a great if flavoured / packed in appealing ways (mentioned an oat product just being released). The suggestion made was that this be all natural – having a guilt free snack or ingredient was seen to be important.  One buyer felt that there were 2 areas of consideration – cereal replacement for gluten free people (which is largely filled by manufacturers) and snacking (which is thought to be a growth area).  The advice: make it suitable for the kids but not childlike then parents will eat it too.

The plant protein concept was said to be interesting but these participants believed their customers would probably prefer the end products to be pre-made (e.g. a range of pastas).  One participant said that If the product was easy to handle (gave a consistent result) then they may be interested for the store bakery – but it would need to taste good and be easy to handle/give reliable results. Breadmaking kits may also be a consideration (sense that they want steps to be taken to make this more convenience focused).

**Overall impression: Quite effortful given the individual nature of relationships / demands / lack of centralization in some areas.**

A category manager for a high-end retailer indicated that each store manages its own ordering from approved sources – every store manages its own destiny in terms of amounts.  This participant was not interested in pick and pack options – he said their customers prefer convenience.  There was some general conversation about how convenience is the driver for their customer base –they tend to look for good quality products, highly nutritious, with effort removed.  Grains and pulses were seen as being a high effort product typically.

There was a comment made that their customer's needs differ from weekday to weekend.  They indicated that their customers may want ready made products from pulses and grains during the week (convenience) and put time into one great dish/item in the weekend that they make from scratch (craft).  There was a comment that it is hard to get volume from 1 great thing however.

A participant in this category could see how pre-packaged NZ grown product might have some attraction but suggested their customers may err to being on trend (e.g. wanting things when they are 'in' and then moving on to the next thing) – meaning that long term commitment can sometimes be hard.

This type of retailer did believe that there is a place for NZ grown soy however – they get requests for this every week.

As a general comment they believed their customers like NZ made/grown, and generally will pay a (little) more for this though if seasonal they expect this to be cheaper.  They did say that people were largely uncaring about provenance with this category however (having said this he did indicate they hadn't really tried to push NZ grown).

There was some interest in puffed and popped pulses and grains if value had been added (e.g. flavours) to make these more of a snacking product – however this would need to be packaged / branded in an appealing way to be sold.

There was some Interest in the plant protein concept but there was a stated preference for products made with this rather than the raw ingredient itself – the ingredient concept was thought to have potential for the '1 great thing' in the weekend, but there was a general sense that their customers would be more likely to value a steady and reliable supply of pasta or bread that has a low carb/high protein content. There was a comment made that the dairy whey would appeal to the gym goer more than the gourmet. No sense of preference for any particular plant protein though hemp was increasingly being asked for.

**Overall impression: Some potential – but probably secondary to smaller retail.**

## SMALLER FORMAT RETAIL

Retailers with this type of store felt that consumers go to them to meet their needs for products in this space – their stores / brands give credibility to the conscious consumer in ways that supermarkets don't. This type of retailer believed people are looking for 'better' and they supply better than the supermarkets (in some way e.g. less packaging, organic etc.). There was lots of commentary about how Keto is 'it' at the moment and they are actively looking for high protein, low carb, high fat products to meet the demand. They mentioned that this too will pass however 'plants' seem to be stable and immune to fads.

There was a clear sense that the customer is the higher socio, well educated consumer with a focus on healthy eating and/or those that have specific dietary needs (e.g. gluten free), and/or those that are eating foods from their own culture (immigrants or those of immigrant families). They said that customers seem to know what they are looking for but are often looking for guidance. They feel they are Influenced strongly by things they see online and in magazines – this will drive a visit with a request for advice or guidance. Recipes are said to be very influential in terms of trying something new. There was divided opinion on whether customers willing to pay a premium for NZ product – some believing these types of products are purchased to help keep eating costs down, others believe that they will pay more for quality / provenance.

There was a strong belief mentioned by several different retailers that NZers (generally) need to be educated as to why good food costs more than junk.  Having said this, they believe grains and pulses aren't seen as 'expensive' perceptually (e.g. at the cheap end of eating) so they have a sense that some customers are not really seeing 'why' they should pay more for something 'simple'.  Others willingly pay more for 'good food' – and provenance is part of the 'good' equation to these customers apparently.

There was a strong attraction to the idea of NZ grown product if it was price competitive and if it is pesticide free (minimum) / organic or packaging free depending of the ethos of the retailer.  One retailer suggested that NZ does have a price premium – and cited quinoa as an example where consumers willingly pay more for NZ grown product.  Another said that people just won't pay for something with no perceptible difference to an overseas product – and as long as its not grown in China then it is seen as 'fine'. There was a sense that retailers with price conscious customers will need another reason 'why' to help explain cost differences to customers (with the exception of soy – which was said to be requested 5-6 times a week).

These retailers like of the idea of being able to have steady supply of product, with communication about growing conditions so that alternatives can be explored in the event of a bad season.

One retailer is adding machinery /equipment into their stores to enable people  to control their own product.  He believes this will have a big impact on people's purchasing / cooking habits.  We couldn't help but consider the potential for smaller artisan operations to purchase directly from this type of retailer given this innovation.

These types of retailers expressed a strong like of a co-operative approach – many small growers getting a good deal through someone creating a supply chain/managing the details in ways that growers can't (and distributors don't want to).  2 options became clear from discussion – 'regular' pulses and grains to keep to a budget for one chain and organic (or organic equivalent) for the other, with a mix of both for a third. Difficulty of having steady supply of product that was organic was highlighted (e.g. 12 months without white beans because of growing issues overseas).  Several retailers discussed how quinoa is getting a bit ‘wobbly’ because of the ethics involved (e.g. country of origin can’t have the food of their culture because it’s all being exported) – NZ grown a way to eat and not be part of the problem.

It’s important to note participants mentioned needing stock stored – they don’t have loads of space to keep inventory. There is an expectation that this will be taken care of (as it is with distributors at the moment) – and product will be able to be drawn down as needed/weekly etc.

We noted some tension in relationship these types of retailers had with distributors – they need them to source and store product but acknowledge that they’re clipping the ticket and making it all cost more – this makes for a love/hate relationship in some instances. There was also a thread of conversation regarding disappointment when ordering and there is no supply – they don’t feel they get warning of issues happening overseas and can’t plan for contingencies. Some believe distributors have their own interests at heart – a ‘take it or leave it’ attitude – that isn’t constructive to the business of doing business.

These retailers tended to mention liking being freed from issues of international supply (price fluctuations, lack of supply), and feel strongly about supporting local growers/business where ever they can. The said they like being able to tell customers about their engagement with local suppliers because this make their customers feel good about their purchasing.

They were Interested in most products on the stimulus list we used in research, adding buckwheat (ideally popped) and hemp. Spelt and rye was needed as flours not grains. There was stated low demand for Amaranth and Teff but ‘this could change any time.’

Backbone products were said to be chickpeas, lentils, beans, quinoa, oats (steel cut). Soybean would also be there if there was supply. Hemp would also likely there if there was steady supply. Spelt and Rye sales are steady (flour). Buckwheat also important for gluten free customers. Quantities mentioned varied from store to store but some participants were happy to share volume information further down the track if it makes a difference to your business case.

The Idea of puffing and popping was well met – these retailers could see how this would work for those customers that like to make their own cereal. They loved the idea of having natural flavourings added to puffed/popped grains/pulses to create snack food options.  Believed to be a real growth area.  Any product that is plant based and naturally flavoured = 'walks out of the store' (Zesti given as an example).  They stated any products would need to have environmental packaging/compostable packaging (or no packaging at all in some instances) because their customers not interested in highly packaged/non-recyclable offers that are out there now.  An example given of NZ pumpkin seeds as a new product in and how popular they are proving to be – 2 different retailers saying this.

Requirements:

- NZ grown, traceability (ideal)
- Organic/organic equivalent or spray free (and non-organic or a mix for other chains)
- Sustainable (e.g. not damaging the planet)/socially responsible
- Ethical – does not disadvantage growers or the people of the land, has solid practices that pay people fairly for their effort, fair trade
- Not overly packaged or unpackaged / packaged with natural materials in minimal ways
- Affordable
- Reliable

The plant protein concept reaction was highly positive across interviews with these types of retailers – while there were many questions there was a general sense that this is a great idea if it tastes good (pea protein as an example of popular in theory but low repurchase) and is genuinely easy to use.  There was a consistent suggestion that dairy whey is not a good addition – their customers were more likely to be avoiding dairy and inclusion of whey would lessen its appeal.

Across these retailers there was general support for the NZ initiative and desire to be part of future conversations.  We obtained a strong sense that these chains will be expanding their footprint along with consumer trends toward healthy eating/free from eating/keto or equivalent eating.

And a request – no more bliss balls please! New Zealand has enough!

**Overall impression: This type of retailer is clearly the initial target and they are receptive to further conversation.**

# Manufacturers

**Large manufacturers** tended to show little interest in NZ grown product – they seem to be looking for what they want (and in fairness have found it), at a price they want to pay, to specifications that are fixed.  They tend not to believe that consumers are interested in the provenance of grains, they believe they are more concerned with the provenance of the brand – this earns the trust in the quality of ingredients.  Because of the mixed nature of the ingredients would always have to declare 'made from local and imported ingredients' as well – something that lessens the impact of NZ grains/pulses.  They have extremely rigid demands for things such as water content of product.  They also have rigid demands for sustainable farming practices (to meet their own sustainability reporting requirements – e.g. would need to declare water used in growing).  They are not interested in air mile conversations because this isn't a big thing for NZers.  Better and cheaper would be the only way to interest this type of manufacturer.

Puffing and popping of no interest – this type of manufacturer often had this capability in-house.

Concept product was said to be interesting but participants interviewed were not wanting to comment deeply as there are too many unknowns.  One **did state however that dairy whey would make it a more desirable export product to China in particular** (note – this was the only participant that had any positive commentary regarding whey).

Manufacturers of scale did state that they believe that NZ can be a premium but saw this as part of a brand story in well established markets generally. Apart from this it's just 'nice to know' and people don't care that much as long as they know the product is NZ made. They felt the average consumer didn't differentiate much between grown and made in NZ.

**A smaller snack food manufacturer** liked the idea of NZ grown but noted that suppliers must meet volume requirements and price point. He has explored NZ grown in the past but can't hit both volume and value at once generally. He would like more NZ grown product but dealing with individual growers was said to be too hard.

There was a strong positive reaction to the plant protein concept – and this participant could see how this would appeal and fit trends. Like others he felt this should be plant based however – dairy was not seen as a good addition.

This participant mentioned a need for hemp and tried to find hemp in NZ at the required amount (500 metric tonne) – however he couldn't get what he needed in NZ but believes NZ gearing up for this now because of popularity.

**Another Smaller snack food manufacturer** believes NZ grown is part of a quality story and that people will buy into it when they understand that it means genuinely good. He could see value in the creation of plant based snacks with minimal processing and natural flavours/ingredients. He could see it being popular with people who think about what they eat and who put quality over quantity – the discerning eating/conscious consumer.

**A mid size food manufacturer** was highly interested in the idea of NZ grown as long as it comes in at an acceptable price and meets quality standards. He had experience of growing soy in NZ in the past and said Gisbourne / areas where corn flourishes (and there's a line for corn processing) really makes for the best product.  He also said he had experiences failures with SI crops (mould growth).

He expressed strong appeal to a co-op model/smaller growers collective – says they do this with groups in Canada now and that the model there is excellent.  His brands prefer to do business with smaller collectives because it fits their company values better.

This participant stated they would need 3 season proof of quality and volume to commit.  He also actively works to avoid market fluctuations by having contracts in place that have a fixed and guaranteed amount of $ paid to growers prior to seeds going into the ground so that everyone wins.  He gave the impression that they would do anything to avoid dealing with commodity market trading if they could - not because they can't – more to do with preferring sustainable business practices and being 'fair'.

This manufacturer said that they are currently exporting about a quarter of their product and they have a goal to increase that to 3/4 in the next 10 years.  NZ grown product would help with their NZ origin story.  This participant was very interested in keeping this conversation going.

This participant believed that the plant protein product concept was on trend – but a lot depended on its price, taste and workability.  To maintain their interest it would need to be plant only as this would be the only appropriate solution for their organization.

He was very excited at the thought of NZ product being in stable supply and that someone is pushing the envelope in terms of NPD thinking in ways that might work for their brand(s).

**Overall impression: The small/mid NZ manufacturers that have a plant / health-based philosophy and an entrepreneurial spirit are a strong opportunity once supply is 'provable'.  It is interesting to note that prices can be negotiated prior to planting (taking out some risk) and that there is a perceived benefit of NZ grown for brands interested in exporting.**

# Influencers

Magazine Editors and contributors are clear on the trend toward plant-based diets and actively work to create content that reflects this.  Having said this, they are quick to point out the need for balance – this is not the only way of eating and a plant-based meal is often only once in a week hence their emphasis reflects this.

Mainstream titles seek to use grains and pulses in ways that reduce meal costs without adding complexity hence there is an emphasis on lentils or canned/frozen product. Health oriented titles are more likely to use raw products in interesting ways and there is a constant desire to find novel ways of using familiar products.  Gourmet titles are more likely to pick up on trends in restaurants and try to bring these to the consumer market. This means that a pulse or grain that is less commonly used may be the highlight product and sometimes this converts into a trend.

What makes a trend is unpredictable, however the conversation indicated that having trusted others introduce an unfamiliar product to the consumer backed by achievable recipes in a title or internet search results in trial.  There was a general sense that the more laborious the process the less likely it would be to be repeated (e.g. multi-day soaking might be fun once or twice but doesn't fit most people's lives today).

Where pulses/grains intersect with ethnic cuisine is an ongoing dialogue with the consumer – there is strong appetite for authentic dishes from other cultures that we an eat at home.  This is likely fostered by our own travels, but also our curiosity about food.

Chefs are said to be hugely influential in NZ.  Frequent diners out have experiences they want to replicate – and are often introduced to new ingredients via a chef looking for 'new'.  This trends for a while and in turn the magazines influence a wider pool of food interested consumers.

There was a general love of all things grown in NZ within influence interviews. If a recipe was involved it was noted that there is (typically) no emphasis on where a product comes from. This is the realm of editorial. An Editor said 3 good talking points is all she needs to make a story, and believed that someone would have to tell the story to get any where close to mainstream acceptance beyond the familiar of (a) pulses and grains and (b) the benefits of NZ grown. Influencer interviews stated that chefs generally love provenance (if quality focused).

**Overall Impression: Influencers need consideration – they could play a key part in encouraging consumer awareness and consideration of NZ grown.**

# Distributor

The distributor interviewed has seen many come and go in this space over time. They are slways interested because if there's an opportunity its not good practice to let it go.

Quantity was said to be all important – needs to fit into a container and fill it – some countries better at doing this than others – hates to get containers with air. Small quantities are dealt with but there is a lot of work making the return questionable.

Belief that Statistics NZ numbers largely right. They believed that Beans are skewed by one significant player that accounts for the lions share of the quantity shown. They believe that they are one of the largest in terms of distribution of all grains and pulses, but that there are another 3 or so significant distributors that contribute to these overall numbers as well. They also mentioned that where it is 'easy' to import then there are a lot of players (e.g. lentils).

There was commentary that there are lots of fluctuations – different seasons mean different countries have more or less success with crops. They are always on the lookout for cheap. If using someone regularly and they have a bad season/price rise then they are dropped and a cheaper alternative is found – and cheaper is always possible (exception organic which seems to be less price oriented (less not none) and more issues with supply). Prices quoted as very, very low for some of these products.

Discussion of opportunities – NZ growers have come and tried to sell their product historically but can't hit the price point needed – wanting too much. This is a fundamental – cost is everything in terms of a deal. Discussion of having some overview on end use prior to growing rather than growing and trying to find a buyer as good practice. Belief that some difference may help as well (e.g. Beluga lentils, not just lentils) – add value through uniqueness but still familiar. Millet also possible because its currently heat treated and people may not know how good it tastes 'fresh'. Good for puffing for cereal too. Suggesting other products – black barley, freekeh, emmer… not because of volume but because of difference. Not really thinking they'll go gangbusters, just might be different and therefore not competing with the rest of the world. Black turtle beans 'going off' because of Mexican in Australia at the moment. Sense of trying to be helpful but struggling to see an opportunity for raw product for you. Kept going back to the suggestion of picking on different variants of products like lentils to command a little more (e.g. beluga lentils not just puy).

This person also mentioned rice – thinking that with our level of rainfall this might be an option as well. Has had experience of someone wanting to do this and doing a lot of the spadework but didn't think it ever went anywhere. Again, conversation about going for difference rather than bog standard.

Mentioned sprouted grains – seems to be hard to find a stable source of these products in quantity – and spoilage is an issue. Not widely popular but a niche gap.

Grains sold in smaller quantities (for distributor) to artisan bakers etc. they are always looking for good quality, cheap flours from the different grain varieties. Milling adds to cost and sometimes machinery to do this not easy to access or the grain itself isn't as easy to mill as wheat (e.g. tough husk)

Belief that NZ alone won't be enough – need to consider export. NZ story as important to some overseas markets – but still wouldn't be enough by itself – price point would need to be competitive. Some discussion as to adding value through organic (desirable in other markets) or trading on quality (e.g. NZ oats are superior because of our weather conditions). Organic + GM free + appealing price point = success. Cheap = success as well. Cheap is easier to sell to more people. Organic more valued overseas than in NZ and Aus. Organic is growing in terms of popularity though. Commentary that organic is growing everywhere except NZ. Comment that there is a 30% premium for organic in the Middle East. Comment that value from organic is possible – and when matched with the NZ story becomes believable/saleable in a different way. Organic as a clear thread of export conversation.

Suggestion of alignment with others wanting to export products from NZ (e.g. have NZ grown added into NZ made products) – has seen this done successfully. Has also seen contracts with manufacturers overseas work well too (e.g. purchase all crop grown) – certainty makes for better outcome.

**Overall impression: Willing to help, and highly experienced.**

# Consumers

Consumers gave 2 clear reasons for pulses and grains – health and ethics – and cost effectiveness of these products vs. other options cemented reasons to continue to use. Pulses and grains are seen as relatively neutral and adept at taking on the flavour of other items, making them ideally suited to a wide range of meals / ethnic cuisine.

Consumers were clearly confused as to what a pulse or grain is – they include cous cous and butter beans into the mix showing the knowledge gap retailers discussed quite clearly. The actual knowledge for most wasn't deep – though the long-term vegan in the group impressed as having superior knowledge across the board. Black beans were sought after by some.

Consumers said they learned about pulses and grains from the expected sources – media and social media, with dieticians, nutritionists and retailers also being mentioned as information sources. Younger consumers were more likely to mention social media as their primary influence.

Their 'guilt free' status as well as their capacity to suit a wide range of dietary needs (including free from consumers) made them versatile and useful additions to regular eating. Versatility is key – hence pulses and grains that can be used in a variety of ways (as opposed to a single task) are more valued.

Consumers didn't particularly value NZ grown – suggesting that as long as the product wasn't from China then it was acceptable. Where there is controversy however (e.g. quinoa being unavailable in the countries where it is traditionally grown because of Western demand) then NZ seems like a 'good' option. NZ grown benefits are not clear to consumers.

Consumers were particularly keen on value-add pulses and grains – popped, puffed, flaked etc. particularly when they could be used as either cereal or snacks. They like the idea of being able to get 'good' snacks into their kids and eat snack foods themselves without guilt. Parameters such as natural flavour and recyclable or environmentally packaging were indicated as essential – these people are clearly conscious consumers in every sense of the word.

The protein concept piqued some interest however it generally felt a little 'processed' in the absence of something tangible. The ability to purchase products ready made seemed to be more acceptable – the notion of gluten free and/or low carb and/or high plant content was 'right' but they needed a real product to evaluate the idea in terms of what mattered most – taste. Pea proteins in particular have disappointed with their flavour profile – hence there is some hesitation for something assumed to be 'expensive' (because it sounds like it will be).

**Overall impression: Demand unlikely to be driven by consumers, however the hesitations are largely due to a lack of information / understanding. The protein concept seems a step too far in the absence of tangible product to experience.**

# Implications

For raw product conversations it would appear that SMALL is the initial target – small format independent retail environments are keen to have NZ grown product and believe that their customers will value it.

They are amenable to further conversation and willing to share information in the pursuit of a successful outcome for all. They individually have modest requirements but collectively could make for a viable opportunity.

The emphasis would be on ethically based brands initially and potentially moving to high end brands over time.

They have a preference for strong values / strong ethical and environmental practices because this helps create an overall 'better' impression – their customers come to them precisely for these reasons (and avoid supermarkets often for the same reasons).

This does put a lot of emphasis on HOW crops are grown however – and the two markets – price conscious and health conscious – appear to demand different practices. Should export be on the cards then organic should be strongly considered for a good portion of supply.

On that note, as the supply for small retail evolves then connection with NZ based manufacturers should be developed. From initial inquiries it would appear that the manufacturers that have overseas parent ownership are a step too far. NZ based manufacturers with a desire to export are a prime target and where there are baked in sustainability values (as opposed to corporate sustainability values) an alignment with NZ supply is desirable. Manufactures with more of an entrepreneurial mindset therefore take on a special importance.

Cost will always be an issue but there is every indication that prices can be agreed prior to growing as long as quality and supply metrics stack up with the right manufacturers. Organic is a 'no harm' scenario in this instance, though may be cost prohibitive. NZ grown and GE free is enough for interested manufacturers.

The model favoured is collective / co-operative with an organizing body that makes dealing with multiple smaller growers easy and benefits a larger number financially. This co-op model is apparently a strong offer in Canada and is suggested as a way forward in New Zealand – it is certainly worth further investigation. The co-op model is favoured due to its fairness and ethicality, while the organizing body makes for seamless business practices – this is the ideal in terms of matching brand values and being seen as fit for modern, non-corporate business.

Large retail and large manufacturers have a 'our way' mindset and a cost consciousness that would drive volume though not necessarily value. Their demands are high and NZ grown would be in constant competition to the volatile international market which would give no certainty/continuity beyond a season by season basis. Some of the independently owned stores may be more open to a supply conversation, however there is no real way of being able to create efficiencies that is readily apparent – it is a store by store, person by person scenario that may prove costly in terms of long term return for what may be limited loyalty (given staff turnover).

Storage of product requires consideration – neither retailer or manufacturer has capacity to store all of their needs for any more than a month by month (sometimes even week by week) period. In this respect a partner that has storage and a distribution chain to supply as needed will be critical.

Consumers are not likely to drive trends in this area – rather others will influence them to create demand. Ensuring NZ grown product is showcased by appropriate publications, chefs and social media touchpoints will be key to driving awareness, consideration and purchase. Consumers tend to have 2 primary reasons for consumption – general 'goodness' in terms of sustainability / eco friendliness / belief in vegan lifestyle and health and wellness. That pulses and grains are also cost effective is a budget bonus but not a driver until the behavior is 'set' and then cost consciousness creeps in as standard consumer behaviour. Their key interest was in raw or partially value-added product (e.g. milled, flaked, puffed), and then flavoured as a snacking scenario. The protein concept impressed as being a step too far for most – they may purchase products made from the plant protein but until they'd tried it in manufactured product would be unlikely to try it themselves (exception would be the avid vegan). Introducing the benefits of NZ grown would require consideration – at the moment any product that isn't grown in China is considered acceptable to many. B2B has convincingly put a case for the consumer being the least influential in this conversation – they buy what they buy but are influenced by others and changing existing behaviours and beliefs will require other stakeholders to assist.

This then implies a further value add scenario – NZ grown product included in other, fully formed products, made within NZ by appropriate brands. Initially artisan offers sold through smaller retailers would appear to be the opportunity, but this could scale relatively easily with enough interest as a working in market concept – bread and pasta were suggested by both retailers and consumers as being desirable. One retailer said their customers paid $16 per week for a loaf of bread – there is clearly a market for value added product as long as the target's needs are clearly identified and plant protein products speak to a number of current convergent trends indicating the potential for success.

Plant protein products are definitely on a growth curve and supplying value added product is seen as a 'winner' by those that interact with the presumed target (higher socio health conscious consumers or ethical eaters). There is a hope for products that are flavoured with natural ingredients, and are suitable for children as well as adults – sweet (no sugar) and savoury (particularly) are desired.

The end goal concept has interest but there is a lot of 'it depends' in responses. There is sufficient interest to explore this further however and people who are willing to engage through development from this initial foray into the market.

From raw product to value added product there are several distinct possibilities however we reiterate that small/mid is the starting point initially.  While large (and their volumes) look attractive the price conversation and their extremely high demands (backed by their lack of loyalty) do not make a compelling case.  Businesses that know their target markets (and fulfill the needs of the consumer types mentioned within this document) are key to success. We stress, however, the need to have your values in alignment with theirs, and to consider a 'greater good' model vs. a standard corporate way of working.

# Appendix 2: Existing Knowledge Base

# Appendix 2: Existing Knowledge Base

**Growing crops – pulses and grains that could be grown in NZ**

| Crop | Where to grow | Potential yield / cultivars | Water needs | Issues / opportunities | End use |
|---|---|---|---|---|---|
| Teff | (10-27°C) is suitable. growing season rainfall of 450–550mm. Frost sensitive. Short daylengths and cool temperatures for good growth. Northland, Waikato, Bay of Plenty. | Low 2-3t/ha. Very small seed. | 450- 550mm There may be potential to grow under irrigation. | Shattering can be a problem. Lodging. Small seed losses in harvest and soil contamination. | Gluten free flour. Flat breads Porridge. High fibre. High iron. High calcium No allergens |
| Quinoa | Short daylengths and cool temperatures for good growth. -4 to 35C. Southern North Island Canterbury | 3-5t/ha Number of varieties and colours. Light colour lower saponins. | 375 -450mm Drought reduces plant height and yields | Saponins – bitter taste. Selected for low saponins or remove seed coat (washed) that contains this | High in lysine. High in iron. Good protein. Flour, soups, salads etc |
| Amaranth | Fairly drought tolerant. Frost sensitive, sow after frosts. 150 days growing season. Soil temperature 18C for germination. Low N demand. Northland. Waikato, Bay of Plenty or Hawkes Bay may just have | 0.5-1.5t/ha. Two grain species – A hypochondriacus is most grown - limited selection. Plainsman is a hybrid. | Drought tolerant. C4 plant. | Harvesting can be a problem uneven maturity. Needs a frost followed by dry weather to harvest. Shattering can be a problem. Susceptible to lodging. Grain needs to be cleaned after harvest to remove foreign matter | High protein 14-16%. High in lysine. As a flour often blended with wheat at up to 50% |

| | | | | | |
|---|---|---|---|---|---|
| | long enough seasons. | | | | |
| Spelt | Autumn sown same conditions as winter wheat. Also some spring varieties.<br>Can grow on low fertility heavier soils.<br>Canterbury | 2.4-4 t/ha. Champ is an improved awnless variety. Maverick and Sungold higher yielding autumn.<br>Spring lower yielding CDC Zorba at 2.2t/ha | Similar to winter wheat 450-600mm | Can lodge.<br>Dehulling of grain is needed.<br>Lower N requirement. | Flour for breads and pasta. 11-12% protein. Soft flour high in resistant starch. Does contain gluten. High in riboflavin.<br>Also used in specialty beers. |
| Hemp | Short day plant flowers when daylength is less than 12 hours.<br>Soil temp 7-15C.<br>100-110 growing days grain.<br>70-90 growing days fibre.<br>Most areas.<br>Avoid heavy soils. | 800-1000kg/ha seed.<br>3-4 t/ha for fibre.<br>Early sowing for fibre.<br>Later for shorter for seed. | 250-300mm water | Harvesting is a problem due to fibrous nature of plant.<br>12% for grain dry to 9%<br>Less than 16% MC for fibre after retting.<br>Requires 100 - 130 kg N/ha. | Seed – oil, flour, beverages<br>Fibre – carpets, insulation |
| Sunflower | Temperature 21-25C for growth.<br>Soil temp 9C for germination.<br>90- 100 days growing season to mature.<br>Main cropping areas not to wet as will develop diseases. | Hybrids<br>Yields 2.5-4.8 t/ha<br>Growing November to March. | Inefficient water user.<br>Drought sensitive – irrigate 20 days pre and post peak flowering.<br>Water use 470mm. | Deep rooting extract N and water from depth.<br>Susceptible to birds close to harvest. Some lodging and shattering also<br>Low N input 50-70kg/ha | 39-49% oil in hybrids.<br>High smoke point oil.<br>High in oleic acid.<br>Human snack foods and seeds.<br>Bird seed. |
| Oats | Spring or autumn sown.<br>Cool conditions through grain fill.<br>Long days to initiate | 5-8t/ha<br>Limited varieties L5 or Armstrong for grain | 450-600mm | Fairly disease tolerant so low fungicide inputs.<br>Lower grain yield so lower N inputs 50kg | High beta glucan<br>High fibre<br>Cereals, museli bars, porridge, beverages. |

| | | | | | |
|---|---|---|---|---|---|
| | flowering – Canterbury or Southland. | | | | |
| Durum wheat | Spring sown. Low rainfall close to harvest. Long days through grain fill. Wairarapa, Marlborough, Nth Canterbury, Central Otago, | 7-8t/ha Limited varieties in NZ | 450mm | Very susceptible to sprouting. Relatively disease resistant but use fungicides for stripe rust. No processing capability in NZ. | Pasta – higher protein over 12.5%. Good colour Golden due to higher carotenoids. Very hard wheat. 45-y gliadin -protein for good pasta. High water absorption. Low alpha amylase. |
| Rye | Winter sown Low rainfall close to harvest. Nth Canterbury | 6-9 t/ha Amilo preferred variety | 450mm Fairly drought tolerant. | Susceptible to sprouting and also to shattering. | Rye breads – lower gluten as more soluble protein (80% vs 20% for wheat) Protein similar to wheat. |
| Emmer (Farro) | Tolerates poor soils. | Low yield - 1.5 - 2.5t/ha in US. Lucille, Vernal, Red Vernal | Drought tolerant | Dehulling is needed. Disease resistant | Emmer bread – High protein 9-13% Has gluten. Pasta |
| Proso Millet | Plant above 18C soil temp Sensitive to cool weather <13C. 85 days to mature. C4 grass. Short maturity means could grow North Island /Canterbury | 2.5- 5t/ha | Drought resistant | Non-determinate. Difficult to define harvest date – windrow. Susceptible to lodging. 25-70kgN No disease issues. | Bread – no gluten Flat bread Roti Porridge 12.5% protein. |
| Buckwheat | Free draining soils can be low pH. Low N requirement less than 50kgN/ha 10C for germination, frost sensitive especially | 1.5-2t/ha Number of varieties but limited breeding. Need to select varieties with quality and suit NZ conditions. | Very drought sensitive. Needs irrigation | Allelopathic to weeds No disease or pest issues low agrichemical input Soil improver High anti-oxidant – Rutin Reduces blood cholesterol | Gluten free Flour – mostly to soba noodles not suitable for bread. Sprouts Honey Nutraceutical High protein 13-15% |

| | | | | | |
|---|---|---|---|---|---|
| | until 2 leaf stage. | | | | |
| Sesame | Needs very warm soils 21C to germinate. Frost sensitive. 125 day growing season. Would only be suited to Northern areas only. | 800 – 1200kg/ha low yield | Drought tolerant – 150-300mm | Need to dry post harvest to 6% MC Indeterminate – windrow to harvest Rain at harvest discolours seed. Pest and disease tolerant | Very high oil 50% of seed weight Whole seed used in baking |
| Carraway | Long cool season Well drained high organic matter soils Autumn sown Southland | 2000kg/ha | | Slow growing – weed problems | Number of health characteristics. |
| Sorghum | Late Spring sown Temperatures above 25C to maximise yield. 18C to germinate. Tolerates heavier soils. 130 days growing. Frost sensitive. Northern North Island / Gisborne | 2.5- 3t/ha Wide range of cultivars. | Reasonably drought tolerant | A lot of information on how to grow. | Flours – flat breads, pasta. Brewing |
| Soybean | Soil temperature over 10C for germination. Mature after 140 days Southern North Island Canterbury | 2-5t/ha Huge number of cultivars. Less clear hilum cultivars available for food consumption | Needs irrigation | GM free – any seed imports need a GE test which has to be done in Australia. Tolerant to wide range of soils. Harvest around 13% MC lower can shatter | Milk Tofu Miso Edamame |

| | | | | | |
|---|---|---|---|---|---|
| | | | | Legume fixes N, no N input<br>Susceptible to insects. | |
| Adzuki bean (red mung bean) | Soil temperatures over 10C for germination.<br>15-30C for growth.<br>Frost sensitive<br>Mature 110 – 120 days<br>Southern North Island / Canterbury | 1.4-4.5t/ha<br>Large number of cultivars have been developed. | Some tolerance to drought but is responsive to irrigation. | Not very competitive susceptible to weed pressure.<br>Some diseases no insects.<br>Indeterminate – windrow, shattering losses if late in season. | Mostly eaten as a whole bean<br>Some sprouted. |
| Yellow pea | Temperate legume<br>Wide range of soil types<br>Southern North Island, South Island | 3-6t/ha<br>Range of cultivars with a range of end-uses | Responsive to irrigation but reasonable dry tolerant. | Very susceptible to diseases in NZ<br>Need protein extraction and no plant available in NZ - $4 mill plus | 21-25% protein<br>High lysine tryptophan<br>Milk<br>Snacks<br>Meat substitutes<br>yoghurt |
| Lentil | Well drained soils<br>Frost tolerant in spring<br>Southern North Island, South Island | 2-3t/ha<br>Number of cultivars of each colour | 400mm - rainfall<br>In drought get cracking and shattering.<br>Benefit from irrigation | Wide range and susceptible to diseases<br>Susceptible to waterlogging.<br>Not competitive weeds can be a problem.<br>Susceptible to lodging and shattering.<br>Green usually higher priced but are easily discoloured near harvest. | 22-35% protein deficient in methionine and cystine. High lysine. Therefore when mixed with cereals a good balance of protein.<br>Ethnic foods – curries, soups etc<br>Red /Green<br>Flour |
| Chickpea | Temperate legume average temperature of 15C.<br>Well drained soils – sandy loams.<br>Seedling frost tolerant. | 2- 4t/ha<br>Kabuli type – number of varieties. | Reasonably drought tolerant. | Deep tap root.<br>Susceptible to diseases when wet / waterlogged.<br>Not competitive with weeds. | 20% protein deficient in methionine and cystine<br>Kabuli types – wide range of foods and uses humus, salads, falafel, flour etc. |

| | | | | | |
|---|---|---|---|---|---|
| | October sown.<br>130 days growing season.<br>Southern North Island, South Island | | | Harvest at 13% -will shatter if too dry.<br>Seed size is important | |
| Faba bean | Spring or winter types<br>Frost tolerant<br>Well structured soils pH 6-7<br>South Island | 4-8t/ha<br>Number for varieties suited to a range of end uses. Yield declines as sowing delayed in spring. | Susceptible to drought - irrigate | Susceptible to foliar diseases need to manage irrigation accordingly.<br>Shattering can be a problem if too dry at harvest.<br>Brackling or lodging if too tall.<br>Number of potential health benefits. | 27-32% protein, lysine rich<br>Low tannin varieties available.<br>Widely used as a cooked bean throughout the world<br>Snack foods<br>Flour – improve nutritional value of other flours. |
| Navy bean / Haricot / red / black | Well drained structured soils<br>Frost sensitive<br>pH 6.5-7<br>Optimum Temp for growth 24C<br>85-115 days – sown Nov / Dec<br>Southern North Island, South Island | 1-2 t/ha<br>Wide range of types, maturities, cultivars | Susceptible to drought - irrigate | Number of potential health benefits.<br>Susceptible to waterlogged soils.<br>Disease susceptible.<br>Not very competitive with weeds<br>Prone to discolouration at harvest.<br>May need polishing for some markets | 22% protein amino acid profile complements cereals.<br>Baked beans, refried beans, |

# Appendix 3: Farmer Questionnaire

S

QUESTIONS

RESPONSES

# Farmer Questionnaire Pulses

Name:

## Email address *

This form is collecting email addresses. Change settings

This questionnaire is based on how much you agree with the following statements.
To help us put the following questions in context, we would like an indication of your age.

| | Column 1 |
|---|---|
| 25-35 years | ☐ |
| 36-45 years | ☐ |
| 46-55 years | ☐ |
| 56 - 65 years | ☐ |
| 65 plus years | ☐ |

Those involved with my business are clear as to the purpose and values of the business.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly Agree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Disagree |

I consistently meet or exceed the standards required when supplying contracted grain and seed.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly Agree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Disagree |

If I am faced with a challenge, the first thing I would do is seek advice from others

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly Agree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Disagree |

I often represent my sector on industry and other bodies

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly Agree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Disagree |

I frequently act as a mentor for less experienced farmers

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly Agree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Disagree |

I actively engage with forums and discussion groups

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly Agree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Disagree |

I always keep myself up-to-date with new regulations that may affect my business

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly Agree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Disagree |

I am the first to implement changes that ensure I comply with new regulations

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly Agree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly Disagree |

How important is being a farmer who takes good care of the environment to your sense of self-identify, i.e. your sense of who you are?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Not at all important | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | extremely important |

How important is being a highly productive farmer to your sense of self identity?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Not at all important | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | extremely important |

Next, we would like to ask whether you agree or disagree with the following statements: I am always one of the first in the district to try something new.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

When I see new practices and technologies begin successfully used by other farmers, then I am also likely to adopt the new practice or technology.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I farm because I am committed to the tradition of our family

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I have often looked for opportunities to participate in the value chain beyond the farm gate.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I frequently take advice from other people when developing my farm business.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I have the necessary knowledge and skill to implement best practices or adopt new technologies that improve environmental outcomes on my farm.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

My farming business is financially robust enough to enable me to implement best practices or adopt new technologies that improve environmental outcomes on my farm.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

There are other issues that constrain me from implementing best practices or adopting new technologies that improve environmental outcomes on my farm.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I am willing to invest money to make changes to the business even if the result may not be realised for some time.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I am constantly reviewing my farm business to see if techniques, tools or practices could be improved.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I am always looking for opportunities to collaborate with others.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I often collaborate with other farmers for our mutual benefit.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I need to see clearly the advantages to me before collaborating with others.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I prefer to rely on my own skills to grow and market my crop.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I would be willing to invest in something for the benefit of the farming community.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

If it reduced our transport costs I would be happy to mix my grain with another farmers to ensure the truck was full.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I would be happy to share machinery with my neighbours.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

In a group setting, I like to engage in discussion with people who have different opinions to me.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

In a group setting, I am happy to go along with the decision of the group even if it is different to mine.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

I am in frequent contact with my neighbouring farm businesses.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Strongly disagree | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Strongly agree |

With how many other farmers did you discuss farm practices, farm system change or practices to improve environmental performance in the last 12 months?

| | Column 1 |
|---|---|
| none | ○ |
| 1-5 | ○ |
| 6-10 | ○ |
| 11-20 | ○ |
| | ○ |

| | |
|---|---|
| 21-50 | ○ |
| 51-100 | ○ |

How many working farms have you visited in the last 12 months?

| | Column 1 |
|---|---|
| none | ○ |
| 1-2 | ○ |
| 3-5 | ○ |
| 6-9 | ○ |
| 10-14 | ○ |
| 15-19 | ○ |
| 20-29 | ○ |
| More than 30 | ○ |