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Report on:

2017 Viewpoints on the use, benefits and perceived nutritional quality of Rapeseed Oil Survey

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Introduction:

Rapeseed oil is the third largest source of vegetable oil in the world and the third largest crop in terms of land coverage grown in the UK the first being wheat and the second being barley.

Rape is produced from black seeds of the rape crop and is a member of the brassica family (*Brassica napus*), including mustards, Brussel sprouts, kale, cabbage, cauliflower and broccoli. The most common usage for rapeseed oil is as a biofuel, in animal feeds and as vegetable oil.

Amongst its many properties, it is rich in omega 3,6 and 9 oils, vitamin K, and it has a high smoke point making it an ideal for frying. Rapeseed oil is lower than olive oil in both saturated monosaturated fats and it has a very delicate earthy, nutty flavour that does not bleed out during cooking. However, public perception of the oil is often as that of an inexpensive, low-quality product with a bitter taste that is pressed using heat and chemicals.

Rapeseed oil is the only oil commonly used for food production which can be both grown and processed in the UK, having been heralded as the “British Olive Oil”. It is also widely grown in other countries such as Ireland, France, Germany, Netherlands and Canada.

This oil is versatile and relatively inexpensive to produce and as such makes it an ideal candidate for a scope for improvement. For example, improvement in flavour through cold pressing, driven by UK farmers spotting a gap in the market for a “High Quality” rapeseed oil.

Industry and the public are increasingly interested in oils that can have improved benefits such as improved nutritional content, flavours and versatility. Therefore, the need for further research to establish how rapeseed oil can be improved would prove very beneficial.

Aim:

Conduct a survey to assist The University of York in establishing whether there is enough interest in the nutritional benefits of rapeseed oil to warrant further research projects on this topic. The results from the survey will help to justify future research programmes for improving specific traits of oilseed rape, resulting in a better oil for human consumption.

Assess the most important oil qualities for the relevant industries and whether traits that we already know of (such as the content of tocopherols, phytosterols etc) would be of interest to the relevant industry stakeholders of the UK market.

Methodology:

An industrial survey was generated and distributed via survey monkey to the rapeseed oil supply chain. The survey questions were determined through consultation with The University of York, Campden BRI and ADAS. The survey was constructed to obtain a fair, holistic answer to the main question: ‘is there is sufficient interest in the nutritional benefits of rapeseed oil to warrant a future research programme for improving specific traits in oilseed rape, that would result in a better oil for human consumption?’

The survey was distributed to a wide business sector to enhance the chances of a good response rate from relevant people who take an interest in the rapeseed oil supply chain. The survey was distributed using the following means:

- Campden BRI Newsfeed which reaches approximately 6,600 people
- LinkedIn – Campden BRI has 6,000 followers
- Included in the Campden BRI newsletter – currently, have 1,500 print and 13,500 in the e-newsletter

Survey Questions:

Q1: What is the name of your business? (optional Question)

Q2: Please indicate the approximate size of your business

Q3: In which sector of the industry is your business? (please select from the list)

Q4: What are the primary oils you use in your production?

Q5: Does your business use rapeseed oil? If not, what is preventing you from using rapeseed oil?

Q6: If rapeseed oil had the following positive physical properties how would you rank these features in order of importance. (1 being very important and 10 is not important)

Q7: If rapeseed oil had, the following positive nutritional properties how would you rank these features in order of importance. (1 being very important and 10 is not important)

Q8: Please state any other important positive physical or nutritional properties of rapeseed oil:

Q9: How do you think consumers perceive rapeseed oil? Please give a reason for your answer.

Q10: Are there any products where you could see rapeseed oil being used more or being used as an alternative to other oils? if yes please state what kind of products.

Q11: Are you willing to be contacted for a short follow up an interview?

Results:

Q1: What is the name of your business? (optional Question)

Respondent	Company Name
1	Respondent skipped this question
2	Respondent skipped this question
3	Company details provided
4	Respondent skipped this question
5	Company details provided
6	Respondent skipped this question
7	Respondent skipped this question
8	Company details provided
9	Company details provided
10	Respondent skipped this question
11	Company details provided
12	Company details provided
13	Company details provided

Table 1: Company names of respondents

In answer to Q1, 46% of respondents skipped the question. The remaining 54% of respondents provided the name of their company.

Q2: Please indicate the approximate size of your business

Respondent	Company Size
1	Medium-sized (< 250 members of staff)
2	Large (> 250 members of staff)
3	Medium-sized (< 250 members of staff)
4	Small (< 50 members of staff)
5	Medium-sized (< 250 members of staff)
6	Large (> 250 members of staff)
7	Small (< 50 members of staff)
8	Large (> 250 members of staff)
9	Large (> 250 members of staff)
10	Large (> 250 members of staff)
11	Large (> 250 members of staff)
12	Large (> 250 members of staff)
13	Large (> 250 members of staff)

Table 2: Size of the business of respondents

Q2 Please indicate the approximate size of your business:

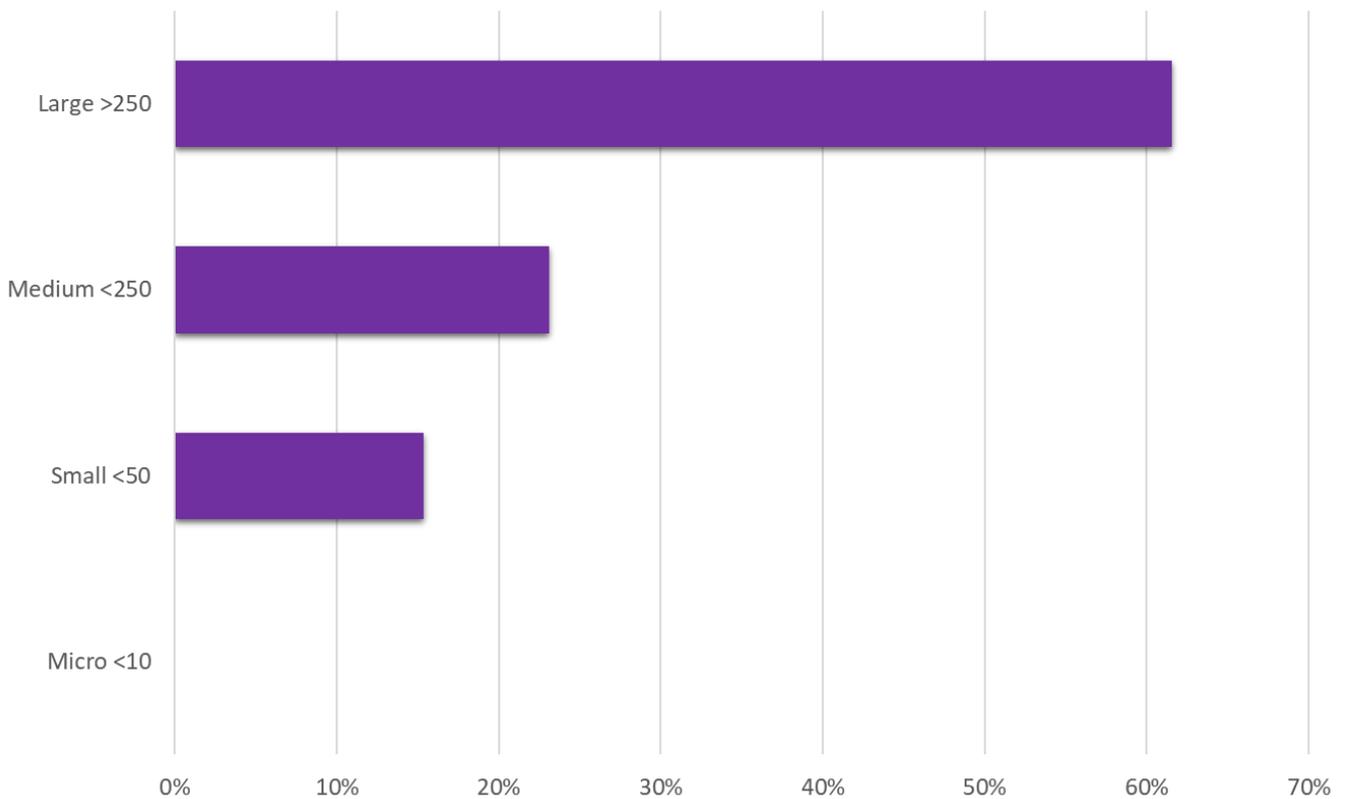


Figure 1: Graphical illustration of the business size of respondents

In reply to Q2 relating to the company size, 61.54% of the respondents answered that they are a large company, 23.08% responded that they were a medium company and the final 15.38% of respondents described themselves as a medium company. None of the respondents described themselves as a small business (<10).

Q3: In which sector of the industry is your business (selected from the list)

Respondent	Industry Type
1	Bakery
2	Other- Retail
3	Fats and Oils
4	Other- Flavours
5	Other-Ready Meals
6	Other- Ingredient Blending
7	Fats and Oils
8	Bakery
9	Bakery/ Foodservice/ Wholesale/ Industrial/ Artisan
10	Fats and Oils
11	Infant and Young Child Nutrition
12	Other-Ingredients
13	Other-Ingredient Supplier

Table 3: Sector of Industry in which respondents

Q3 In which sector of the industry is your business?

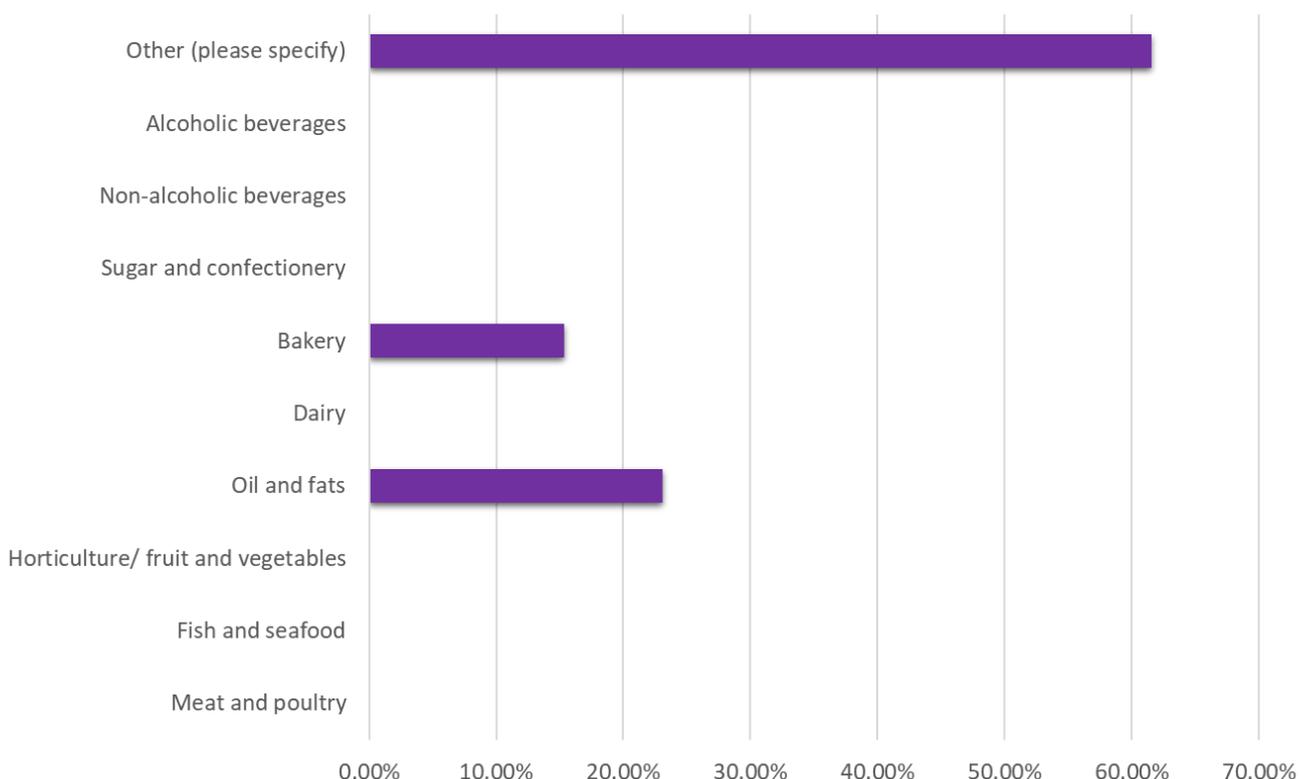


Figure 3: Graphical illustrator of the sector of Industry in which respondents

In answer to Q3, 23.08% of respondents indicated that they are Oil and Fats businesses, 15.38% from the bakery industry and the remaining 61.45% answered as “Other”. This section composed of retail, flavour, ready meal production, ingredient blending and ingredient suppliers.

Q4: What are the primary oils you use in your production?

Respondent	Primary Oils used in Production
1	Rapeseed oil, Palm oil, Butter, Coconut
2	Rapeseed oil
3	Sunflower oil
4	n/a
5	Rapeseed oil
6	Rapeseed oil, sunflower oil
7	Refining
8	Rapeseed oil, Sunflower, Palm oil
9	Hardened Palm Kernel Oil, All Palm Blend, Hardened Palm Blend, Rapeseed oil, Sunflower
10	Palm oil, Rapeseed oil
11	Full range of vegetable oils, butter oils and fish oils
12	Palm oil, Rapeseed oil, Sunflower oil, Mineral oil
13	Our customers can use all edible oils and fats

Table 4: Primary oils that respondents use in their production processes

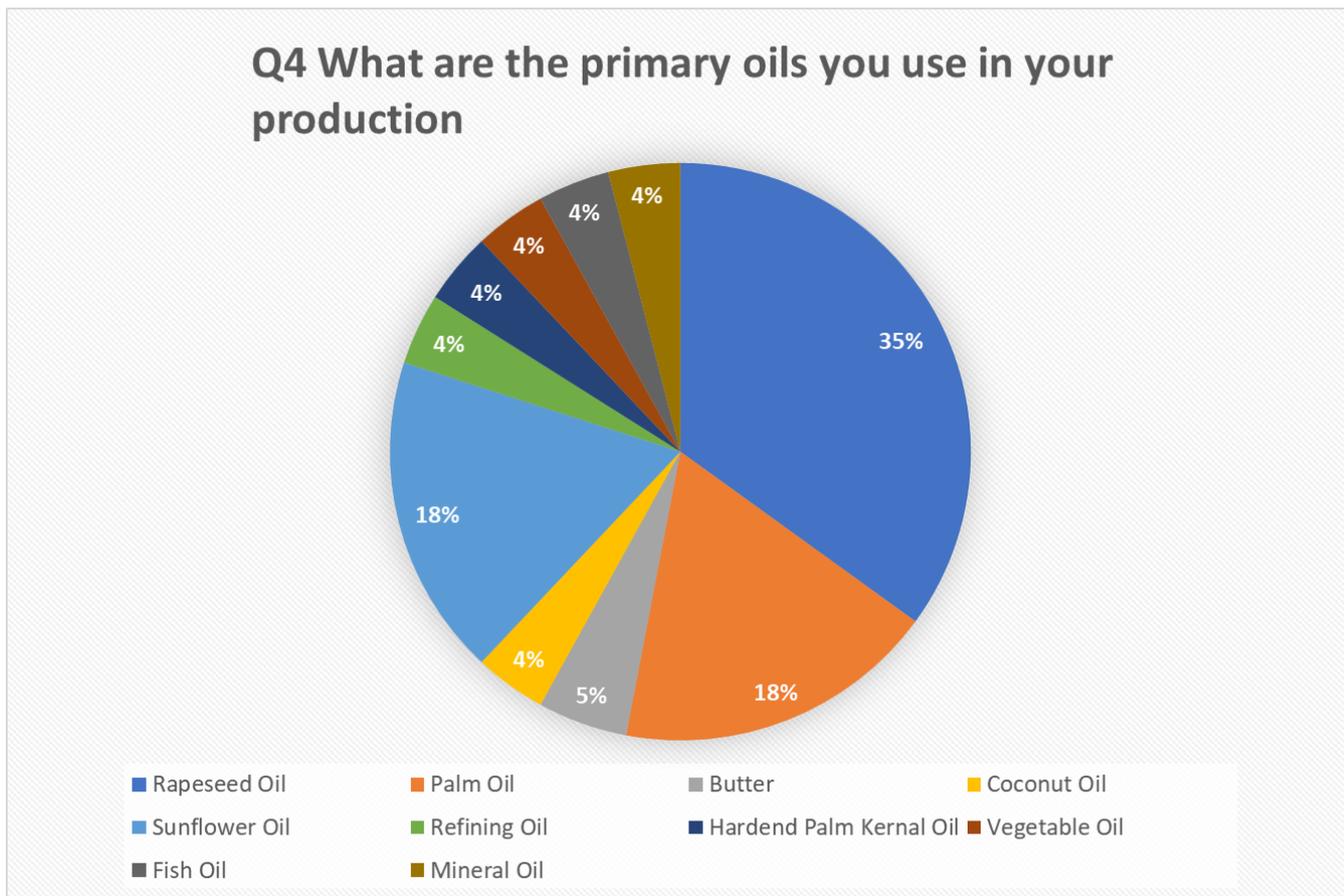


Figure 4: Pie chart illustrating the primary oils used by the respondents

The pie chart above illustrates which oils are used in the respondent's production processes. Rapeseed oil was the most widely used by respondents with 35% of respondents replying that they used this oil. This was followed closely by Palm Oil and Sunflower Oil, both 18% respectively. The remaining fats and oils were less widely used.

Q6 If rapeseed oil had the following positive physical properties how would you rank these features in order of importance

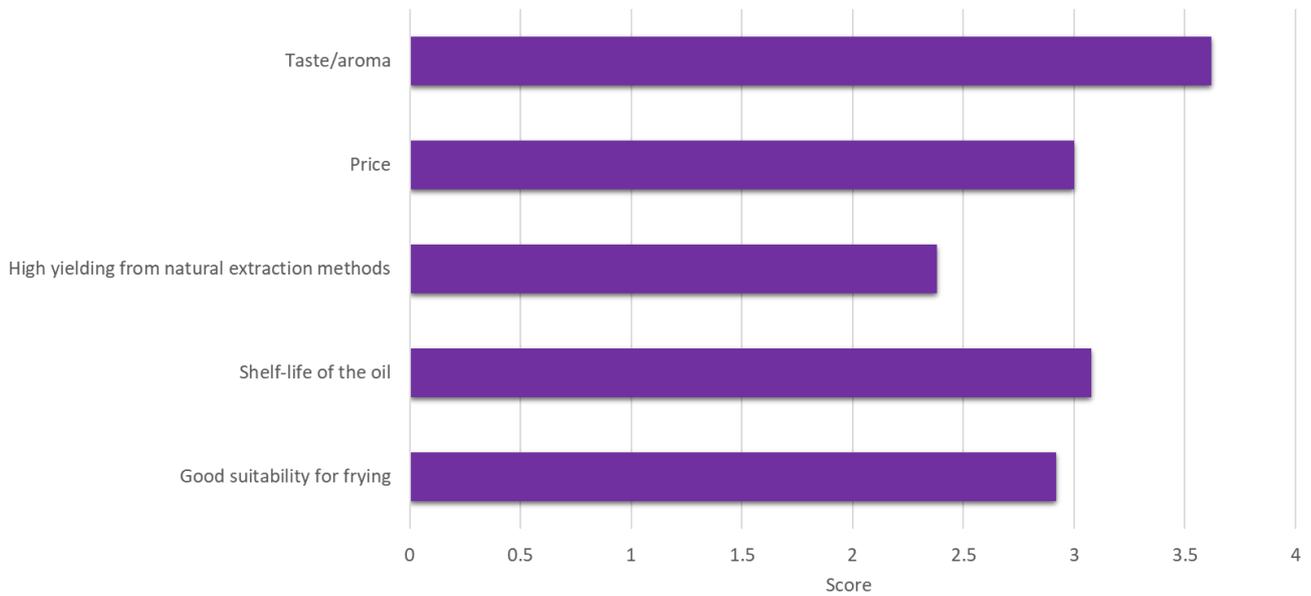


Figure5: Graphical illustration showing the ranking of desirable physical properties

Taste and aroma scored ranked the highest for desirable properties, followed by shelf life, price, frying stability and high yield.

Q7 If rapeseed oil had the following positive nutritional properties how would you rank these features in order of importance

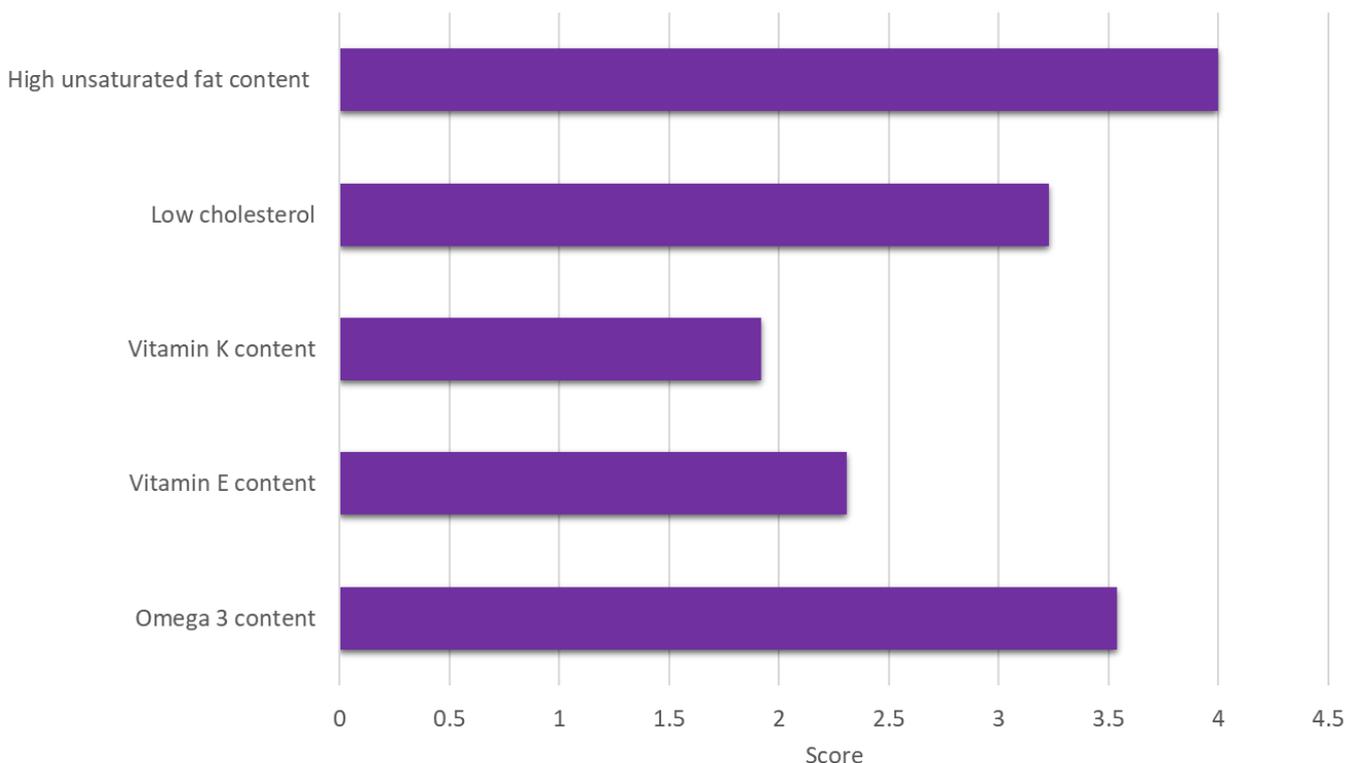


Figure 6: Graphical illustration showing the ranking of desirable oil nutritional properties

When asked to rank the nutritional properties of rapeseed oil, being high in unsaturated fat scored the highest, followed by the omega 3 content, low cholesterol Vitamin E contents and final Vitamin K content.

Q8: Please state any other important positive physical or nutritional properties of rapeseed oil

Respondent	Important Physical or Nutritional Properties
1	Rapeseed oil, Palm oil, Butter, Coconut
2	Physical uses to replace hard fats if this was achievable. Perception (below) would enhance the offering and assist with circular economy/ origin claims. Potential enhancement of nutritional profile to deliver a contribution to diet: Vitamin A/ D/ B2, Iron/ Calcium: there is an increase in younger consumers avoiding the use of fortified products and would prefer naturally higher vitamin and mineral contribution from natural materials. This would be an opportunity to deliver on vitamin/ mineral levels in a commodity material
3	Erucic acid
4	Liquid at room temperature
5	Stability of the oil during frying
6	Clear, bright yellow in colour

Table 5: Other important physical or nutritional properties of rapeseed oil.

Six out of thirteen respondents answered question 8. One of the respondents appeared to have misread the question. From the remaining 5, it is believed that the nutritional content of rapeseed oil can be improved, being liquid at room temperature and its stability during frying where all deemed important qualities.

Q9 How do you think consumers perceive rapeseed oil? Please give a reason for your answer

Respondent	Primary Oils used in Production
1	I would expect customers to see the oil as natural and locally sourced/grown so good for the environment and the local/UK producers. Also, no GMO association at present
2	As a healthy oil
3	Historically as the cheapest "vegetable oil", now there are premium rapeseed oils, so I would expect perception to improve
4	There is very little understanding of the term Vegetable oil and most consumers don't seem to be able to differentiate between oil types
5	More positive over Hardened/ Hard fats due to the nature of the physical state. Increased popularity in green oils, i.e. Cold pressed Rapeseed. However, the latter contributes a flavour which is not 'clean' for industrial use
6	Healthy versatile
7	Like the smell and taste of the product
8	Some like that coldest pressed are British, has a high smoke point and has less saturated fat than olive oil but many associates it with the sickly-sweet smell of oilseed rape in flower and that puts them off
9	They only consider it as 'cooking oil' and buy by price
10	UK source, seen positively, minimal questions asked about sustainability

Table 6: How consumers view rapeseed oil

Three people decided to skip question 9. From the remaining 10 respondents, they considered that the public believes that rapeseed oil is healthy and natural and therefore good for the environment. In addition, consumers like the smell and taste and consider it to be a cooking oil due to its high smoke point.

Q10 Are there specific products where you could see rapeseed oil being used more or being used as an alternative to other oils? if yes please state what kind of products

Respondent	Alternate Uses for Rapeseed Oil
1	Again, no association with GM so Mayonnaise and dressings manufacturers have fewer issues
2	More acceptable in the market place, just not functional in all our products due to pH
3	Yes, (1) as a replacement for palm oil in biscuits, (2) as a replacement for sunflower oil to give a better balance of omega 3 and 6 fats
4	No
5	The functionality of hardened blends of fats delivers higher functionality over rapeseed. Textures and structures are important in many technical products, but in cakes and muffins, this is a highly used material to deliver emulsions/ batter consistencies required for texture, shelf life/ moisture control. Stability is also beneficial over hardened fats.
6	Alternative to palm oil
7	Yes, industrial frying
8	Uk products
9	All ready meals
10	No
11	Mayonnaise and dressings
12	No
13	If there was an easy way to set/harden the rapeseed during production would be used to replace palm in all aspects of the business

Table 7: Alternate uses for rapeseed oil

When asked about alternate uses for rapeseed oil a better balance of omega 3 and 6 fats, alternate to using palm oil, especially in biscuits and cake manufacturing due to its physical properties that make it suitable for batters and emulsions. In addition, it can be used in salad dressings, mayonnaise production and as a replacement for palm oil.

Q11 If you are willing to be contacted for a short follow up an interview, please leave your contact details

Four respondents left their contact details for future correspondence we must be via Campden BRI if required.

Conclusion

The survey was published in two of the monthly newsfeeds distributed from Campden BRI (December 2018 and January 2019). In addition, it was posted on the Campden BRI LinkedIn page and shared periodically. This enabled the survey to be accessed by a wide spectrum of the food and drinks sector. Ultimately, these methods ensured that the survey would be distributed to numerous people within the desired demographical sector.

There were 13 respondents in total, all of which completed the survey and gave feedback relating to their businesses and the use of rapeseed oil within the food and drinks industry.

Over 60% of the respondents described themselves as a large business with over 250 employees. One-quarter of these businesses are in the fats and oils sector, the remaining included bakery, retail and ready meal producers.

Rapeseed oil was reported as the most widely used oil within these businesses. When asked to describe the desirable traits of rapeseed oil being high in unsaturated fats ranked as the most desirable attribute. Most respondents believed that the nutritional content of rapeseed oil has scope for improvement.

Describing consumer perception of rapeseed oil, the respondents believe that it is perceived as a healthy and natural oil.

Finally, in describing alternate uses of rapeseed oil, any product which currently uses palm oil such as bakery goods, mayonnaise and salad dressings was the most popular answer.