Department for Business, Energy & Industrial Strategy

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Government Chemist

Stakeholder Workshop Report 2022

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Executive Summary

This report presents the findings of the stakeholder workshop carried out on 6 June 2022 at the Royal Society of Chemistry, Burlington House, London. Thirty stakeholders from across the food and feed sector, including representatives from manufacturers, distributors, retailers, importers, regulators, legal and government, established the key drivers influencing the food and feed sector to which the proposed Government Chemist Programme 2023-2026 should respond.

The workshop comprised of two components; an initial brainstorming followed by a prioritisation stage.

In excess of 320 ideas were gathered in the initial brainstorming phase. From this wealth of information, participants decided the following as priorities:

- Food authenticity and food fraud prevention
- Food security
- Alternative proteins
- Contaminants in novel foods, packaging and recycled materials
- Environmental claims / food labelling
- Gene Editing / GMOs
- Data capture, mining and effective use/misinformation
- Enhanced surveillance
- New regulations for novel foods
- Skills – gaps, availability and training

Other concerns highlighted related to global food shortages, ethical kite marks/verification and ownership of new plant/genetic species (e.g., Nagoya protocol).

Based on these identified priorities, the Office of the Government Chemist will now prepare a draft future work programme for further prioritisation by the Department for Business, Energy and Industrial Strategy (BEIS) appointed Programme Expert Group in November 2022, to allow contracting and start of the finally agreed programme in April 2023.

1. Introduction

The Government Chemist programme is funded by The Department for Business, Energy and Industrial Strategy (BEIS), with a current annual budget of approximately £1.4M.

The overarching aim of the Government Chemist function is to provide independent science-based opinion and advice, defined more fully as:

- *Referee Analyst*

  An independent and impartial statutory function, resolving disputes that occur in relation to relevant legislation which focuses on public protection, value for money and consumer choice, predominantly in the food and agriculture sectors.

- *Advisory*

  A source of advice for Government and the wider analytical community across measurement science to assist Government in its policymaking, standards-setting and regulation across the public sector.

The Government Chemist role is supported directly by a small specialist team comprising the Office of the Government Chemist (OGC), with the resources of the wider National Measurement Laboratory at LGC also being available to its functions.

The impact of the Government Chemist programme lies principally in preventing unwitting errors in measurement science that would have adverse impacts on consumers, businesses and the criminal justice system. In addition, it delivers scientific advances and advice to enable the analytical community to tackle measurement problems that are perceived as difficult and so help protect consumer health or choice and foster innovation.

The Government Chemist programme is renewed on a three yearly cycle, with the next programme starting in April 2023. To establish the focus of the next programme, a workshop was held with, a cross section of external stakeholders with an interest in the Government Chemist Programme, to share their opinions and establish a list of prioritised drivers.

The Government Chemist programme forms part of a wider portfolio of programmes comprising the National Measurement System.

2. Aim

To identify drivers which should shape the direction of the Government Chemist Programme 2023-2026 and to establish priorities based on the importance and certainty of the outcomes resulting from these drivers.

3. Methodology

The approach followed was PESTLE Driver Mapping, as detailed in the Government Office of Science Futures Toolkit[1]. This approach identifies the political, economic, societal, technological, legislative and environmental drivers (PESTLE) shaping the future for the sector.

Approach: Facilitated workshop with thirty invited participants with an interest in the Government Chemist Programme.

Timing: 3½ hours in a workshop setting.

Output: A list of drivers to be included in the future strategy and scope of the Government Chemist Programme 2023-2026. It will also provide details of drivers that need to be tracked and those that are considered important for the programme but have an uncertain outcome preventing their current prioritisation.

Method: The method includes three steps:

• Step 1: Introduce the workshop and the PESTLE approach

• Step 2: Brainstorm the drivers

• Step 3: Map the drivers

Step 1: Workshop facilitators introduced the workshop and the PESTLE approach

The aim of the workshop was introduced as informing the direction of the next Government Chemist Programme (2023-2026).

Participants were asked for their views on the political, economic, societal, technological, legislative and environmental drivers (PESTLE) when considering the question:

What factors do you think will impact the Government Chemist Programme over the next 5-10 years?

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[1] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/674209/futures-toolkit-edition-1.pdf

Step 2: Participants brainstormed these drivers for 45 minutes.

Participants were asked to identify factors driving change within the context of the question posed in the introduction. These drivers were captured onto Post-it® notes (one driver per Post-it® note) and placed on one of six boards containing the headings:

- Political
- Economic
- Social
- Technical
- Legal
- Environmental.

The Post-it® notes were then collated into related themes, with duplicates being discarded. Facilitators then compiled a summary set of Post-it® notes, condensing all the drivers into over-arching themes. This was then presented back to the workshop participants for use in the driver mapping session.

Step 3: Driver Mapping Axes of Uncertainty, 45 minutes, in groups of 7 or 8.

Each group of participants was asked to map the drivers on a matrix according to their importance for the Government Chemist Programme and the certainty of the outcome of each one, considering a 5-10 year time frame (see Figure 1).
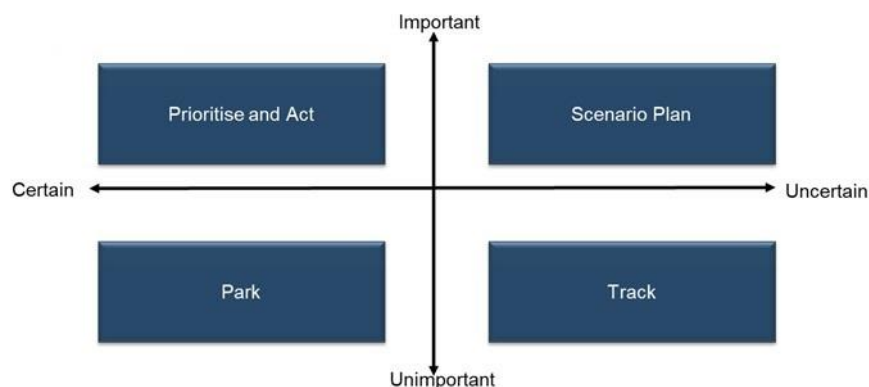

Figure 1- Axes of Uncertainty.

The groups were then asked to cluster the drivers by theme and, focussing on the top left quadrant, to identify the five priority drivers that they believed to be most important for the Government Chemist Programme.

A representative from each group presented their top five drivers and the justification for their choice to the rest of the participants. A discussion was then held with all participants to establish the narrative for each of the top drivers.

Data Analysis:

Each driver detailed on a Post-it® note was given a score based on its quadrant and whether it was identified as a priority driver:

Priority Driver	5
Important & Certain (Prioritise)	3
Important & Uncertain (Scenario plan)	2
Unimportant & Uncertain (Track)	1
Unimportant & Certain (Park)	0

For Post-it® notes that had been positioned on the border, an average was taken, e.g., a driver on the line between Park-Track would be given a score of 0.5. Scores of the different groups were summed and averaged for each cluster. For the priority drivers and high scoring themes, additional narrative is presented in the results section.

4. Results

PESTLE Drivers - Identification

Step 2 produced in excess of 320 PESTLE drivers, although many had recurring topics and trends. Where topics overlapped the PESTLE groupings, they were grouped to the most prevalent occurrence, unless a specific additional point was being made.

Political

Points were raised regarding varying standards of legislation across the devolved nations and the impact this would have on food regulation divergence and consumer choice. The conflict in Ukraine was raised and the impact this has to societal food trends and potential food fraud and security. Furthermore, the importance of increasing understanding within politicians regarding measurements and adequate funding for the measurement infrastructure, post-EU Exit.

Economic

Concern was raised regarding the increasing cost of food and wages not keeping pace, leading to limited consumer choice on quality of food. Furthermore, working with uncertainty was highlighted in regard to global supply chain disruption and ideas on how to mitigate this, e.g., delivery via drones and food app deliveries.

Social

Changing societal trends brings risks to be aware of. One topic of interest is internet-sourced food and drugs, including unregulated online food marketplaces, which brings about issues with food authenticity. Furthermore, with the popularity of plant free diets and sustainable packaging and foods, it is important to ensure regulation of the authenticity of these claims. Another concern was

related to increase usage of social media for information and the lack of factual evidence which may lead to lack of consumer trust.

Technical

Particular topics raised include the rise of gene editing; development of user-friendly and cost-effective screening tests for allergens; resources to mitigate effects of novel foods, e.g., laboratory-grown meats and food insect genomics.

Legal

The most prominent legal concern highlighted the divergence of regulation and the potential for emerging disparities within the UK and between the UK, EU and international countries and any agreed trade deals, following EU Exit. There was also increased concern regarding control of third-party suppliers and data-sharing, with an increased need for government-led guidance on addressing fraudulent risks.

Environment

Our changing attitudes to eating meat is resulting in alternative proteins, as well as insect-based food and cellular agriculture. This brings with it the need for assessing verification of sustainability claims, concerns with recycled and smart food packaging and safety associated with resulting potential exposure to allergens, and novel substrates and packaging. Furthermore, with increasing climate change, air quality, energy use and food production efficiency is being questioned.

PESTLE Drivers - Mapping

The 320+ PESTLE drivers produced in step 2 were collated into 128 drivers for prioritisation in Step 3. The details of these, presented as a ranked list, are included in Appendix 1. Appendix 2 lists the details of the top five priority drivers by group. The ten drivers that scored highest are listed below along with narrative from discussions captured at the workshop. Where drivers are similar, these have been grouped.

1. **Food authenticity and food fraud prevention** (Economic, Social & Technological):

   The authenticity of food supplements, especially those purchased online, was highlighted as a particular area of concern. The desire (from consumers and governments) to pursue more sustainable diets, is leading to novel food products, e.g., made from alternative protein sources. The increased demand creates an opportunity for criminals to provide fraudulent products. As novel products emerge, it will be important to verify their authenticity and monitor contaminants.

2. **Food security** (Economic):

   Food security was a prominent topic of discussion, including the impact of consumer choice influencing lack of quality products, global food shortages and supply chain disruption. The effect of inflation on food cost was recognised as a threat to food security, driving more people into food poverty.

3. **Alternative proteins** (Environmental & Technological):

   New technologies are leading to novel products, which need to be assessed to ensure they do not pose a threat to human or animal health. Efficient and effective screening tests in the field, and at the point of manufacture and point of purchase were identified.

4. **Contaminants in novel foods, packaging and recycled materials** (Environmental):

   Novel foods and materials were highlighted as potential sources of unintended contaminants from green technologies. The use of novel packaging materials has the potential to bring about food safety risks. Harm to health and the environment was discussed in relation to microplastics and the importance of determining them in food. International datasets and blockchain data science to identify gaps within national and local data was also highlighted.

5. **Environmental claims / food labelling** (Environmental, Legal):

   The variety and variation in the different 'green' claims appearing on food labels was discussed and the importance of development of metrics to determine their validity. Balanced attribution of product lifecycle effects, including air quality, energy use and production efficiencies, on net zero targets was raised.

6.   **Gene Editing / GMOs** (Political, Social & Technological):

Concern over the potential varying approaches to the regulation of gene edited food products across the four nations, let alone globally, was expressed and the consequences for international trade. These are likely to be fuelled further by new trade deals and the varying measures of risk assessments in other countries. Additionally, variations in regulation will cause confusion to FBOs and could also lead to lack of consumer confidence.

7.   **Data capture, mining and effective use/misinformation** (Social & Political):

Increasing consumer demands in transparency about the origins of food as well as packaging, is driving an increase in green claims. It was recognised that scientific data can be spread at a rapid rate through social media and news outlets propagating misinformation and reducing consumer confidence in food. Stakeholders felt the GC had a role in combatting misinformation by ensuring clear communication, using evidence-based outputs, to ministers, senior civil servants and the media.

8.   **Enhanced surveillance** (Political):

Concerns were raised over the divergence of EU-UK legislation following EU Exit, and its potential impact of food safety and standards going forward. It was recognised that new international trade deals can bring with them, a variation in standards. It was considered important to continue to demonstrate the maintenance of high standards in the UK; the lack of funds within local authorities available for food surveillance was recognised as a barrier to this. In addition, the UK now has to undertake all its own risk assessments in relation to the authorisation of GMOs and feed additives, which requires skilled, trained staff to perform them.

9.   **New regulations for novel foods** (Legal):

Key mention of the challenge of fraudsters (in global supply networks) to cross border regulations. Further, the cost of external legal resources may be seen as prohibitive for self-regulation, which in turn leads to more reactive as opposed to preventative approaches. Finally, there needs to be consideration for new regulation in response to plant-based foods, supplements and controlled substances.

10. **Skills – gaps, availability and training** (Social):
Stakeholders noted that there is an issue with recruiting the people with the skills required creating a skills gap. EU Exit was mentioned in relation to skills. It was felt that the shift to virtual working since the COVID-19 pandemic will affect the work environment and recruitment of skilled staff. Often, once staff have been recruited, extensive in-house training is required to get them working to the required standard. International collaboration

was raised as an area of importance related to Research and Development, that could help bridge some of the gaps - and also help with horizon scanning.

APPENDIX 1

Rank	Driver	TOTAL SCORE
1	Analyst training & availability [S]	18
2	Food fraud & food cost [Ec.]	15
3	Alternative proteins, safety & nutrition [Env.]	14
4	Contamination (all sources) [Env.]	14
5	NML development of metrics for environmental claims [Env.]	13
6	Gene Editing [P]	13
7	Data & provenance (misinformation) – e.g., influence of social media [S]	13
8	Lab grown cultured foods [Env.]	12
9	Gene editing vs GMOs [S]	12
10	Alternative proteins: Insect, lab grown meat, veganism [T]	12
11	Contaminants in novel foods [Env.]	11
12	Enhanced surveillance capability of food safety/health [P]	11
13	Global food shortages [Ec.]	10
14	Ethical kite marks/verification [Env.]	10
15	New Regulations for new foods (e.g., CBD) [L]	10
16	Big data and GC role [S]	10
17	Counterfeit products [S]	10
18	Air/water quality [Env.]	9
19	Changing attitudes to eating meat/veganism [Env.]	9
20	Environmental food labelling [Env.]	9
21	Legislation involving environmental claims [L]	9
22	Ownership of new plant/genetic species (e.g., Nagoya protocol) [L]	9
23	Intelligence Capturing & effectively using test data with data mining/AI [P]	9
24	Edible insects, shelf life & new diets [S]	9
25	General authenticity testing [T]	9
26	Testing for allergens [T]	9
27	Testing for gene edited products [T]	9
28	What is intent of measurement? Do politicians understand measurement? [P]	8.5
29	Food security [Ec.]	8
30	Supply chain traceability [Ec.]	8
31	New food additives [Env.]	8
32	New packaging contaminants [Env.]	8
33	Novel processes/new growing methods [Env.]	8
34	Recycled materials [Env.]	8
35	Validating Green claims [Env.]	8
36	Arbitration of pre-legal proceedings (e.g., expert opinion on acceptability of methods) [L]	8
37	Divergence of UK/EU Legislation [L]	8
38	International collaboration needed with loss of access to EURL [P]	8
39	Desire to re-use & recycle [S]	8

40	GMOs – increasing number [T]	8
41	Method validation of new tech [T]	8
42	Cost of living [Ec.]	7
43	Microplastics [Env.]	7
44	Sustainability (verification/validation) [Env.]	7
45	Divergence of GB/NI Legislation [L]	7
46	EU Law Change and UK on hold – UK law change target dates – uncertainty/delays [P]	7
47	Misinformation with both public & politicians – e.g., imperial vs metric – educating MPs [P]	7
48	New import control regime for food and feed [P]	7
49	Food waste [S]	7
50	International collaboration [S]	7
51	Access to support system (e.g., PAs, labs) [T]	7
52	Climate change/Global warming [Env.]	6
53	Impacts of food waste [Env.]	6
54	Are EU-14 allergens suitable for UK population [L]	6
55	Need for new legislation requiring parliamentary time [L]	6
56	Deregulation of food standards – reducing consumer confidence [P]	6
57	Geopolitical impact of restricted ingredient sourcing (e.g., sunflower oil in Ukraine, minerals in China) [P]	6
58	Lack of funding for trading standards [P]	6
59	GC expert advice [S]	6
60	Hybrid working - Next generation of SMEs [S]	6
61	Lack of available talent [S]	6
62	Access to databases [T]	6
63	Home delivery meal kit safety [S]	5.5
64	Cost of analysis [Ec.]	5
65	Effects of war/conflicts [Env.]	5
66	Alternative diet definitions & verifications [L]	5
67	Cross border compliance and enforcement [L]	5
68	Trade deal threats (e.g., supply chains, ingredients, products) [L]	5
69	Competition for water [P]	5
70	Future trade agreements [P]	5
71	Lack of funding for Public Analysts [P]	5
72	Potential for different standards/legislation across devolved nations [P]	5
73	Strategy, KT and advice for GC… globally [P]	5
74	Consumer education [S]	5
75	Quality of life [S]	5
76	Development of RMs [T]	5
77	Development of screening approaches[T]	5
78	Digital traceability [T]	5
79	Lack of EURL services [T]	5
80	Printed foods [T]	5
81	Validating claims on food packaging [T]	5

82	Biodiversity law [Env.]	4
83	Net Zero targets/low carbon systems [Env.]	4
84	Active encouragement of self-reporting/whistle blowing for breaching of laws [L]	4
85	Enforcement of internet sales (e.g., Facebook) [L]	4
86	Lack of global harmonisation of legislation [L]	4
87	Law to prevent economic crime [L]	4
88	Regulatory capacity [L]	4
89	Time for UK laws to be updated [L]	4
90	Trade deal opportunities (e.g., supply chains, ingredients, products) [L]	4
91	Govt bowing to driving the economy over regulatory/legal change [P]	4
92	Increased protectionism to preserve local food supplies [P]	4
93	Need cross-party longer-term strategy (e.g., Change of Govt with next General Election) [P]	4
94	NI protocol [P]	4
95	Personalised medicines & diets [S]	4
96	Food security issues [T]	4
97	Maintaining UK control capability [T]	4
98	Supply & demand, speed of response [T]	4
99	Use of big data [T]	4
100	High Fat, Sugar & Salt legislation[L]	3.5
101	Choosing cheap in the short term & the true cost in longer term (health, environment) [Ec.]	3
102	Competition for land/water supply/food supply [Env.]	3
103	Environmental footprint [Env.]	3
104	Cost of legal resource, prohibitive for self-regulation [L]	3
105	Veterinary Agreement with EU [L]	3
106	Food strategy publication – addressing supply chain resilience [P]	3
107	Re-join EU due to economic downturn in UK [P]	3
108	What does 'better' look like e.g., composition – who defines those standards? [P]	3
109	Rate of change of tech [T]	3
110	Sharing data on sampling [T]	3
111	Targeted nutrition [T]	3
112	Weight of evidence approaches [T]	3
113	Desire for plant-based diets [S]	2.5
114	Diet, health & nutrition [S]	2.5
115	Economic pressure leading to waste [Env.]	2
116	Environmental good manufacturing practice/pesticides [Env.]	2
117	Deregulation leading to food issues [L]	2
118	Legality of data sharing for fast moving, consumer goods [L]	2
119	Measuring the effects of climate change [S]	2
120	Sustainability of UK agriculture [S]	2
121	Green claims verification [T]	2
122	Semi quantitative molecular techniques [T]	2
123	Longevity [S]	1.5

124	Appetite to reduce regulatory burden [L]	1
125	Horizon scanning [T]	1
126	Long term shortages of raw earth & inert gases [T]	1
127	Reliance on cheaper alternatives: Obesity [S]	0.5
128	FSA strategy now includes healthier & sustainable food [P]	0

Table 1. Drivers ranked by score in the prioritisation exercise () indicating if political (P), economic (Ec), societal (S), technological (T), legislative (L) and environmental (En).

APPENDIX 2

The top five Priority drivers by Group:

Group 1 (Green)

- Analyst training & availability [S]
- Data & provenance (misinformation) – e.g., influence of social media [S]
- Enhanced surveillance capability of food safety/health [P]
- New Regulations for new foods (e.g., CBD) [L] & Legislation involving environmental claims [L] (highlighted equally)
- Intelligence Capturing & effectively using test data with data mining/AI [P]

Group 2 (Blue)

- Contamination (all sources) [Env.]
- Gene Editing [P] & Testing for gene edited products [T] (highlighted equally)
- Alternative proteins: Insect, lab grown meat, veganism [T]
- Arbitration of pre-legal proceedings (e.g., expert opinion on acceptability of methods) [L]
- Sustainability (verification/validation) [Env.]

Group 3 (Red)

- Analyst training & availability [S]
- Food fraud & food cost [Ec.]
- Gene editing vs GMOs [S]
- Alternative proteins: Insect, lab grown meat, veganism [T]
- International collaboration [S]

Group 4 (Yellow)

- Analyst training & availability [S]
- Food fraud & food cost [Ec.]

- Alternative proteins, safety & nutrition [Env.]
- NML development of metrics for environmental claims [Env.]
- Data & provenance (misinformation) – e.g., influence of social media [S]