

ALTERNATIVE SOURCES OF DOMESTIC PROTEIN



- Protein supply for both food and feed production is currently dominated by imports such as soybean/soya meal
- High potential growth and margins in novel foods, with many start-ups and venture capital investment
- However, animal feed continues to represent the largest volume
- Both sectors represent great opportunities for developing domestic protein production.

NIAB is involved in several projects investigating the potential of alternative protein sources, including as part of the Growing Kent and Medway initiative, at NIAB East Malling in Kent.

Alternative protein sources are classified into several broad categories:

Plant-based proteins

- We need competitive domestic sources to displace imported soya
- Obvious candidates are pea and faba bean
- Medium term potential in other grain legumes
- Long term – extracting proteins from leafy species
- Also consider co-products from crops used for other purposes
- See accompanying board for more details.



Fermented and cultured products

- Consumers are already familiar with fermented mycoprotein (e.g. Quorn®) but there is enormous potential to explore other fungi
- Artificially cultured meat grown from stem cells has certainly resulted in making headlines but may still hit regulatory hurdles, struggle to convince consumers and would require significant scale-up.



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Insects

- Insects are rich in balanced protein and can be fed with agri-food co-products or even waste streams
- Most work has concentrated on black soldier fly larvae, mealworms and house crickets
- The major focus has been on rearing insects for animal feed, though there has been interest in processed foods derived from insect-based flour
- Problems still remain with regulatory issues, with consumer attitudes and with the ability to scale up.



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Seaweeds and other algae

- Several seaweed species have been investigated regarding food/feed applications, though not all as protein sources
- Red seaweeds are particularly high in protein, with a profile similar to egg proteins
- Seaweeds are capable of producing 5x the protein per unit area of soybean
- Other algae such as Chlorella and Spirulina are well-suited to fermentation and already have established markets as food supplements.

