Background
The high and increasing consumption of products from animal origin is one of the key factors causing current routes for food production to be insufficiently efficient to feed the growing, and more affluent world population. Meat production is inefficient with respect to the use of land, water and raw materials. In addition, there is an increasing resistance against the meat industry in the Western world on for example animal welfare grounds.

Nutritionally, peas or soy would be excellent protein sources, but most consumers prefer meat. The fact that meat is a product that is fibrous on various length scales including the nanometre scale, is for a major part responsible for this: the flavour components are gradually released upon chewing, giving a good taste experience during the complete duration of mastication.

A route to reduce the consumption of these products is the development of plant-based analogues for meat or meat-like products. Consumer sciences have indicated that products that resemble the original will most likely have the highest chance of success to be picked up by the broadest range of consumer groups.

Recently, Wageningen University & Research and the Technical University of Delft have jointly developed a novel technology for the production of fibrous, plant-based materials on nano to meso scale, resembling the structure and bite of meat better than commercial products that are currently available to consumers. This fibrous material could therefore form the basis of the next generation of meat analogues.

Vision and ambition
Plant Meat Matters has the following vision and ambition towards a next generation of meat analogues:

- Reduced consumption of products from animal origin is a key step towards a sustainable diet, and can be achieved by direct replacement by textured plant-based products
- Ingredients necessary for meat analogues can be produced with higher efficiency, and reduced use of energy, water and chemicals when focussing on the right ingredients for meat analogues rather than on pure ingredients
- Producing less waste by production of meat analogues is possible by keeping food fresh for longer and on demand production of meat analogues
**Project objectives**

- Improve scientific basis for next generation meat analogues
  - Product quality: water binding, fat, flavours, etc.
  - Ingredient flexibility & possibilities for processing
- Further development of technologies and ingredients for meat analogues
  - Consumer-accepted and improved characteristics
  - Cost-effective process with reduced environmental impact
- Enable partners to develop and produce better meat analogues, ingredients, flavouring and equipment

**Project structure**

The project is divided into 8 work packages. The work packages indicated in blue focus on bridging the technology gap and build on background knowledge and results from the 6 other work packages.

- WP 1 Upscaling and maturing shear cell technology;
- WP 2 Developing meat analogue products with excellent taste and texture and investigating consumer acceptance of those products.

The green work packages focus on understanding the structuring process:

- WP 3 Understanding the structuring potential of oilseeds, which includes the effect of fractionation;
- WP 4 Investigating the structuring potential of protein concentrates and isolates from pulses and beans, including the effect of mild fractionation;
- WP 5 Understanding mechanical properties, juiciness and flavour release of structured protein systems;
- WP 6 Towards the development of plant-based alternatives for meat-derived ingredients in pet food;
- WP 7 A sustainability analysis of various alternatives for meat.

The orange work package focusses on knowledge transfer:

- WP 8 Communication and Dissemination
Consortium partners

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<td>Wageningen Food &amp; Biobased Research</td>
<td>Wageningen, The Netherlands</td>
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Project information

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