

## Practice abstract #4.5

# How to get plant-based meat analogues from CROPDIVA crops?



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### CHALLENGE

Meat analogues are obtained by processing different ingredients and additives to imitate the fibrous structure, color and aroma of meat.

Currently, most of the references that we find on the market are made from soy protein and wheat protein (gluten) by extrusion cooking.

There is little information on vegetable proteins from legumes or cereals like those studied in CROPDIVA project.

### SOLUTION

Protein texturing of CROPDIVA crops has been studied using two extrusion technologies: Low Moisture Extrusion Cooking (LMEC) and High Moisture Extrusion Cooking (HMEC).

### OUTCOME

The LMEC produced Texturized Vegetable Proteins (TVP), with a porous structure. After extrusion cooking, the TVP are stabilized by drying and, consequently, they require a hydration process before consumption.

HMEC produced High Moisture Meat Analogues (HMMA), fibrous protein analogues with sensory characteristics comparable to meat muscles. The HMMA, due to its high moisture content (50-70%), must be kept refrigerated and has a limited shelf life.

The texturing process of vegetable proteins depends on the characteristics of the vegetable proteins, the moisture content of the matrix, the cooking temperature and the pressure and residence time in the extruder.



### **PRACTICAL RECOMMENDATIONS**

The extrusion cooking process must be optimized for each particular case. The results obtained so far indicate that both cooking extrusion technologies, LMEC and HMEC, have great potential in the development of meat analogues from legumes and cereals.



#### **About CROPDIVA**

CROPDIVA wants to put 6 underused arable crops back in the fields: oats, hull-less barley for human consumption, triticale, buckwheat, faba beans and lupins. 27 European partners are joining forces to enhance agrobiodiversity in Europe. They will achieve this by focusing on crop diversity and creating local value chains. The project is running from September 2021 to August 2025.



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