




Hemp Protein



July 2018

Industrial Hemp

-  Hemp is the family of the Cannabaceae (like humulus).
-  Hemp is one of the first domesticated plants, from Neolithic period in China and in Japan.
-  THC (Δ^9 -tetrahydrocannabinol) is the main psychoactive substance of hemp. Its presence in industrial hemp is strictly controlled by EU regulations:

THC < 0,2% in Europe


THC < 0,3% in Canada, China ???

-  Cannabis Sativa L. is the only hemp variety authorized in Europ.

Hemp in Europe

- **European Hemp total surfaces 2017: 42 000 ha**
- **French hemp surfaces 2017: 18 000 ha Grown by 1414 producers**
- **Yield per ha: 1,07 MT or 10,7 qx for seeds**

- **European seed consumption 2017 = 20 to 25 000 T**
 - **15 to 18 000 T produced in Europe**
 - **6 to 10 000 T imported (from Canada or China)**

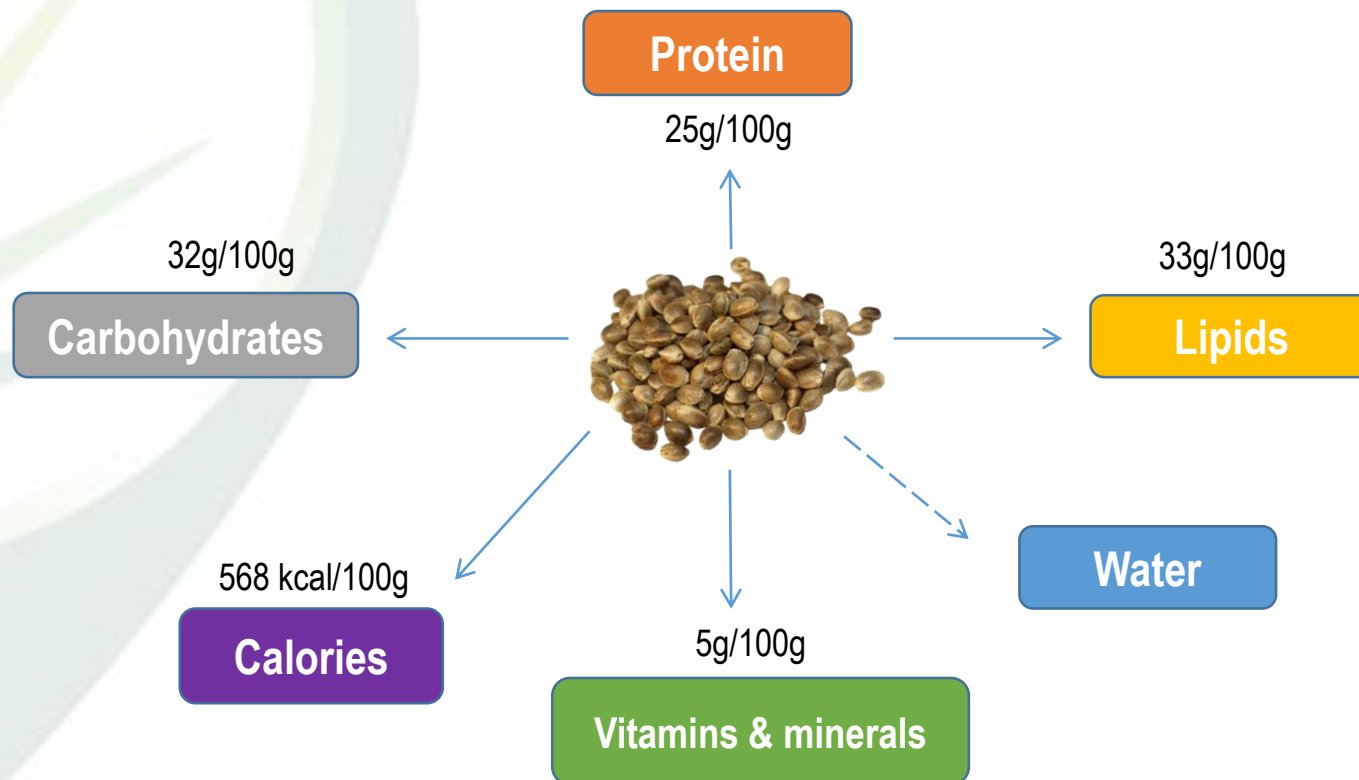
- ❖ **Ton of proteins = 18 000 T x 25% =**
 **4 500T eq pure 100% protein**

Introduction

Hemp protein:

The protein comes from the hemp seeds.

Transformed firstly to hemp flour and then into hemp protein powder.



Hemp protein



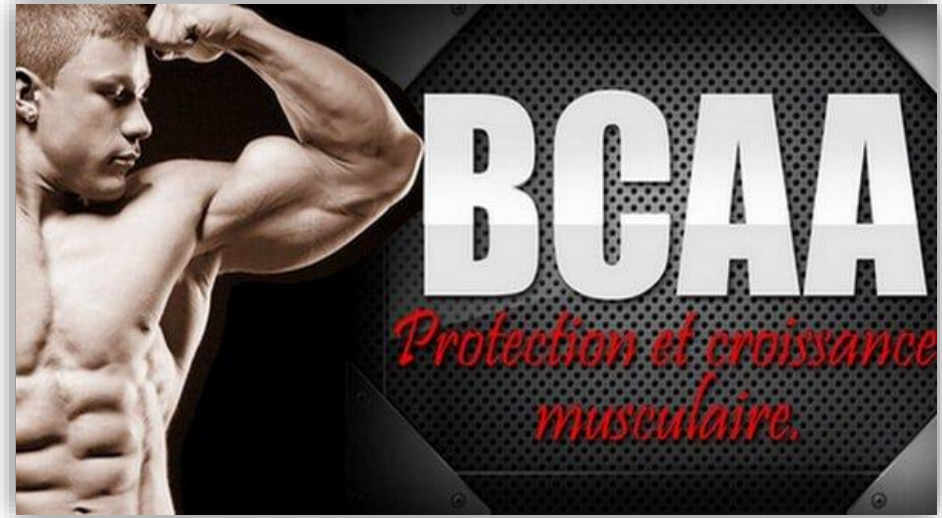
- **65 % Edestin Globulin**

⇒ Close to blood globulin

- **35 % Albumin**

⇒ High quality , very similar the egg white protein.

Essential amino acids	No-essential amino acids
isoleucine	Alanine
Leucine	Arginine
Lysine	Asparagine
Methionine	Aspartate
Phenylalanine	Cystine
Threonine	Glutamic
Tryptophan	Glycine
Valine	Ornithine
Histidine (children)	Proline
	Serine
	Tyrosine



The branched-chain amino acid (BCAA) include:

Valine

Leucine

Isoleucine

Important for sport nutrition : The first amino acids used during muscular effort.

The advantages of hemp protein

- Contains all of essential amino acids and BCCA
- Rich in fiber;
- No animal ingredient
- Gluten free, (doesn't include soy and the other allergens)
- Rich in vitamin E and minerals (magnesium, iron, zinc, potassium and calcium);
- Easy to digest – good assimilation
- From “chemical free” plants.

Positionnement



- **Key points :**

- ❖ One of the vegetable protein who includes all essential Amino Acids:
 - Includes all of BCCA;
 - High chemical index, high digestibility.
- ❖ No allergen, no inhibitor of digestion or negative digestion factors for human being or animals.
- ❖ 100% Natural, doesn't include any kind of chemical treatment (from the seed to the crop , includes a full warranty: pesticides free, fungicide free).
- ❖ Gluten Free.
- ❖ GMO free.
- ❖ A real alternative to whey.

PDCAAS: Protein digestibility – corrected amino acid score

Proteins	PDCAAS
Egg White	1,00
Soy bean	0,78
Peas	0,7
Dehulled hemp seeds	0,7
Hemp seeds	0,51
Rice	0,5
Wheat	0,42

Intake













100 g white meat chicken = 22 g proteins ;
100 g minced beef = 26 g ;
100 g white fish = 19 g ;
100 g eggs = 13 g ;
100 g cottage cheese = 7 g ;
100 g gruyere = 29 gr
100 g cooked lentils = 8 g proteins ;
100 g wheat flakes complete = 11 g...
100 gr dehulled hemp seeds = 30 gr proteins;

2 table spoons of hemp seed deliver 8 to 11 grams of proteins, equal 2 eggs white.

- **vegetable proteins** are mainly deficient in :
 - lysine from cereals
 - methionine from bean family.
- A large number of reactions in the body are based on the amino acid present in smaller amounts.

Quantité de protéines / 100 g

Graines de citrouille 	33 g	Amandes 	22 g	Pois chiches 	8 g
Graines de chanvre décortiquées * 	30 g	Edamame * 	11 g	Tofu * 	8 g
Lait de soya 	3 g	Beurre d'arachide 	25 g	Haricots rouges 	9 g
		Quinoa cuit * 	4 g		

Protein comparison



	Whey proteins	Casein proteins	Egg proteins
Function	<ul style="list-style-type: none"> • Muscle growth; • Foaming capacity • Quickly absorbed; • Post-workout recovery. 	<ul style="list-style-type: none"> • Coagulating protein : cheese 	<ul style="list-style-type: none"> • It's the protein reference for nutrition.
Advantages	<ul style="list-style-type: none"> • Medium price level; • Cheese by-product. 	<ul style="list-style-type: none"> • Slower absorption; • Excellent chemical index 	<ul style="list-style-type: none"> • Rich in vitamins & mineral
Disadvantages	<ul style="list-style-type: none"> • Lactose intolerance; 	<ul style="list-style-type: none"> • lactose intolerance ; • The price is more expensive than whey protein. 	<ul style="list-style-type: none"> • Expensive
Retail price	<ul style="list-style-type: none"> • 20 – 25€/kg (>80% protein, >17%BCAA) 	<ul style="list-style-type: none"> • 35 – 45€/kg (>70% protein, 15>%BCAA) 	<ul style="list-style-type: none"> • 35 - 42€/kg (>80% protein) • Not enough references;

Protein comparison

	Soy bean protein	Brown rice protein	Pea protein	Hemp protein
Function	<ul style="list-style-type: none"> Provides an alternative animal protein 	<p>Provides an alternative animal protein & soy bean protein.</p>	<ul style="list-style-type: none"> Full vegetable protein; Provides an alternative to animal protein and soy bean protein. 	<p>Provides an alternative to animal protein & soy bean protein.</p>
Advantages	<ul style="list-style-type: none"> Contains all essential amino acids; Afordable . 	<ul style="list-style-type: none"> Hypoallergenic or easy to digest. 	<ul style="list-style-type: none"> Hypoallergenic 	<ul style="list-style-type: none"> Complete vegetable protein; Superfood: contains all essential amino acids; hypoallergenic; Does not contain inhibitor.
Disadvantages	<ul style="list-style-type: none"> GMO; Flatulence; Contains the trypsin inhibitor 	<ul style="list-style-type: none"> Are not complete.(lysine) 	<ul style="list-style-type: none"> Doesn't contain enough quantities of some amino acids (methionin and tryptophan). 	
Retail price	<ul style="list-style-type: none"> 15 – 20€/kg (>90% protein) 	<ul style="list-style-type: none"> 22 - 26€/kg (>80% protein) 	<ul style="list-style-type: none"> 10€/kg (>75% protein) 30 – 35€/kg pour les bio. 	<ul style="list-style-type: none"> 24 - 32€/kg (>45% protein) 30 – 40€/kg for organic protein

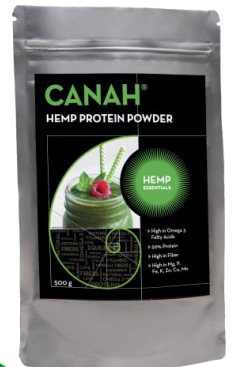
Some hemp protein brands

Description	Brand	Origin	Ingredients
ONNIT Hemp FORCE	Hemp Force Protein Giveaway	USA	Mix the isolate hemp protein with brown rice protein and pea protein.
Nutiva Hi Fiber	Nutiva	USA	Pure hemp protein.
Manitoba Harvest Hemp Pro	Manitoba	Canada	A kind of powerful hemp protein powder offers 20g protein in each serving.
Jarrow Formulas Hemp Protein	Jarrow	USA	A supplementary protein that is rich in protein and rich in fiber.
Nature's Way Hemp Protein and Fiber Powder	Nature's Way	USA	Mix the hemp protein with pea protein and goji berries.



Some hemp protein brands

Description	Brand	Origin	Ingredients
Hello Joya Organic hemp protein	400g/14,9€	France	<ul style="list-style-type: none"> • 100% French products; • Nearly 50% vegetable protein; • Rich in fiber (18%).
Alter Nutrition Organic hemp protein	500g/19,9€	France	<ul style="list-style-type: none"> • More than 44% protein.
La Maison du Chanvre Organic hemp protein	450g/12,95€	Germany	<ul style="list-style-type: none"> • Rich in protein (50 g / 100 g); • Not heated above 42 °C.
Lchanvre Organic hemp protein	1,2kg/34€	France	<ul style="list-style-type: none"> • 44,8% protein; • Transformed in region Brittany, exclusive French seed.
Canah international Hemp Protein Powder	500g/15€	Romania	<ul style="list-style-type: none"> • More than 50% protein.



Hemp protein application in food sector



Passion Guava hemp dessert
73,5% hemp juice



Natural hemp drink
Hemp juice



Natural hemp dessert
95% hemp juice



Hemp milk



Hemp milk



Hemp milk



INTERCHANVRE

Hemp Industry

Protein Plan





Organisation of the Sector - Protein

Genesis

- **Le Plan filière** et le besoin d'apporter de la valeur ajoutée aux producteurs

Action plan

- **Création du Label chènevis français** en cours
- **Etude de marché** USA, Allemagne et France sur l'alimentation humaine pour l'automne
- **Partenariat avec une nutritionniste et Bleu Blanc Cœur** et leur pôle scientifique pour cautionner la pertinence de notre démarche
- Demain, **possibilité de structurer plusieurs acteurs de la filière pour développer ce marché**, grâce à l'AMI lancé par FranceAgriMer



I love Hemp Seeds

