

## DENMARK

### PEDO-CLIMATIC CONDITIONS:

A typical coastal climate, relatively warm, with mean annual temperatures of between 7-9°C and annual precipitation of 640–770 mm. Lowest temperatures are between December and April (0-5.7°C) and the warmest between June and August (14-16°C). The predominant soil type in Denmark is sandy, followed by loam and clay.



Picture 1: Winter fava-bean trial in Taastrup, Denmark (16/01/2020)

### CROP: Fava beans

Winter fava beans were selected in order to validate the positive results of the previous EU project, Protein2Food. The winter season was chosen as a way to advance the development of the plants in order to stimulate an enhanced response to both the biotic and abiotic stress that is present during the spring season. The genotypes validated under organic management can tolerate temperatures as low as -12°C, with protein yields comparable with spring fava beans (more than 600 kg of plant protein per hectare).

Year	Cultivar	Yield (kg ha <sup>-1</sup> )			TSW (g)			Protein (%)			Protein Yield (kg ha <sup>-1</sup> )		
		Est	s.e.	sign.	Est	s.e.	sign.	Est	s.e.	sign.	Est	s.e.	sign.
2020	AUGUSTA	2601	353.1	a	549.8	18.34	a	24.2	0.95	a	632	88.5	a
	VESPA	2705	353.1	a	605.2	18.34	ab	23.1	0.95	a	627	88.5	a
	TUNDRA	2153	353.1	a	544.7	18.34	a	23.8	0.95	a	519	88.5	a
	HONEY	2040	353.1	a	680.8	18.34	b	23.9	0.95	a	487	88.5	a
	WIZARD	1674	353.1	a	617.6	18.34	ab	24.8	0.95	a	418	88.5	a
	BUMBLE	1547	353.1	a	620.4	18.34	ab	20.7	0.95	a	313	88.5	a
Cultivar*Year		***			***			***			***		

Table 1: Seed yield, thousand seed weight (TSW), protein content, and protein yield of six winter faba-bean cultivars, validated in Taastrup, Denmark (2019/2020)

### BEST AGRICULTURAL PRACTICES:

- **Organic regenerative practices applied:**
  - Crop-stubble leftovers from the previous season were incorporated into the soil.
  - Mechanical harrowing as soon as weeds emerge.

- **Best practices for sowing :**

- The first week of October has been identified as a recommended date for sowing in Denmark in order to obtain optimal yields.
- Selecting cultivars with good performance and disease tolerance (France and UK are breeding and sourcing winter fava beans).
- Sowing depth at 3-7 cm, depending on seed size.
- Density of 50-60 plants per square metre.
- Row spacing of 50 cm in order to allow for mechanical weed control.

- **Best practices for managing the chosen crops:**

- Early preparation of the soil, allowing weeds to emerge, followed by a subsequent harrow (false seed bed) before sowing.
- Adequate soil-bed preparation in soils with good water-holding capacity (clay or loamy soils, or more sandy soils if irrigation is possible).
- Early mechanical weed control.

- **Best practices for harvesting the crops chosen:**

- Combine harvesting once the crop has completed maturation. The harvested product is dried in order to achieve 12% water content.



*Picture 2: Mechanical weed control of winter fava bean, Taastrup Denmark 2020*



*Picture 3: Winter fava bean rows after weed control, Taastrup Denmark 2020*

## CONTACT

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