DENMARK

PEDO-CLIMATIC CONDITIONS:

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

Picture 1: Intercropping lentils and oats (left) compared to a sole crop plot (right), Taastrup, Denmark, 2020

CROP: Lentils

Although lentils are not a common crop in Denmark, their suitability for food products and absence of anti-nutrients makes them a good alternative for plant-protein production. In the first year of trials, we validated three cultivars that were previously tested in Taastrup, as well as adding new ones that were available from Smart Protein. Variety selection was based on previously tested yield stability and the need for a diversified seed-colour range in order to stimulate potential demand.

Year	Cultivar	Yield (kg ha^{-1})			TSW (g)			Protein (%)			Protein Yield (kg ha^{-1})		
		Est	s.e.	sign.	Est	s.e.	sign.	Est	s.e.	sign.	Est	s.e.	sign.
2020	ITACA	1502	106	c	32.9	3.82	a	24.9	0.484	a	376	31	c
	ANICIA	1259	106	bc	31	3.82	a	27.3	0.484	b	345	31	bc
	GODLANDSLINS	1240	106	bc	26.8	3.82	a	28.8	0.484	b	357	31	bc
	ROSANA	976	106	ab	26.6	3.82	a	27.8	0.484	b	272	31	ac
	FLORA	852	106	ab	26.7	3.82	a	27.3	0.484	b	233	31	ab
	GUAREÑA	506	106	a	57.2	3.82	b	28	0.484	b	142	31	a
2021	ITACA	977	171	a	37.9	0.71	d	24.6	0.290	a	240	44	a
	PAULA	896	171	a	32.9	0.71	c	25.4	0.290	ab	228	44	a
	ROSANA	834	171	a	25.8	0.71	a	27.4	0.290	c	229	44	a
	FLORA	831	171	a	29	0.71	b	26.7	0.290	bc	221	44	a
	ANICIA	789	171	a	29.4	0.71	b	25.8	0.290	ab	203	44	a
Cultivar*Year			***			***			***			***	

Table 1: Seed yield, thousand seed weight (TSW) and protein content from two years screening of 5/6 lentils cultivars validated in Taastrup, Denmark (2020/2021)

BEST AGRICULTURAL PRACTICES:

- **Organic regenerative practices applied:**
  - Crop-stubble leftovers from the previous season were incorporated into the soil.
  - Intercropping with oats in order to reduce weed competition and plant lodging, and enhance cropping-system resilience.
  - Mechanical harrowing as soon as weeds emerge, ensuring that the crop is not damaged.

- **Best practices for sowing:**
  - Sowing in early spring is recommended in order to obtain optimal yields.
  - A selection of cultivars with good performance in northern latitudes.
  - A sowing depth of 0.8 – 1.5 cm, depending on seed size.
  - Density of between 120 and 150 plants per square metre.
  - A sowing distance of 50 cm between rows 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 harrowing (false seed bed) before sowing.
  - Adequate soil bed preparation in loose, well-drained soils (best yields at a pH of between 6-6.5, with low nitrogen content).
  - Early mechanical weed control.

- **Best practices for harvesting the crops chosen:**
  - Lentils are best harvested when the pods are fully dry, although the crop can be harvested at a higher moisture content in order to reduce seed shattering.

Picture 2: Lentils sown in rows after mechanical weed control, Taastrup, Denmark, 2020

CONTACT **Gabriela Alandia**, Researcher at University of Udine

gabriela.alandia@uniud.it