PORTUGAL

PEDO-CLIMATIC CONDITIONS:

Warm and temperate Mediterranean climate, with a distinct wet season in winter.

Picture 1: Quinoa Titicaca (Source: Beotanics)

CROP: Quinoa

Quinoa was shown to be adaptable to the Portuguese climate. Using regenerative agricultural practices with adaptable varieties, yields of about 1,9 tons per hectare are feasible.

The main considerations taken into account during the variety-selection process were that they be well-known, highly productive cultivars that are adaptable to a wide range of climatic conditions.

Growing quinoa in Portugal offers promising results since the crop adapts well to various climates and the demand for high-protein crops is continuing to grow.

In field trials over the past three years, the Titicaca and Puno cultivars produced the largest yield, while the other cultivars only partially performed. Aphid attacks were observed on all varieties during growth and development, although blight pressure wasn't considered a significant risk.

Typically, the quinoa crop grows to a height of about a metre in the case of the Vikinga variety, and up to 1,8 metres with the Puno and Titicaca varieties.

The seeds are contained in loose clusters, which fall off when shaken. The colour of the seeds ranges from golden (the Titicaca variety) to white (the Puno variety).

Additionally, new quinoa varieties that are more diversified in terms of seed colour and protein content are entering the market, which is likely to promote wider consumer acceptance. Higher yields, along with easier mechanisation and the use of regenerative agriculture are other potential benefits of this crop's diversification.

Variety	Seed/m²	Plant №	g/m	kg/ha	g/plant
PUNO	100	89	194	1940	2.2
TITICACA	100	88	107.5	1075	1.2
VIKINGA	100	88	48.5	485	0.6

BEST AGRICULTURAL PRACTICES:

Picture 2: Quinoa panicle-Variety Titicaca (Source: Beotanics)

- **Organic regenerative practices applied:**
  - Application of two separate fertilisation methods (80 kg/ha and 100 kg/ha nitrogen).
  - Foliar spraying with organic products for pest and disease control.
  - Three mechanical weedings during the growing season.
  - The remaining biomass was incorporated back into the soil in the form of green manure, which increases soil health.
- **Best practices for sowing:**
  - Soil preparation should involve shallow ploughing of up to 30 cm and the application of fertiliser with higher levels of nitrogen, i.e. a nitrogen-phosphorus-potassium ratio of 9:3:3 or 9:3:6.
  - Sowing should be shallow, at a depth of 2 cm, with row spacing of 50 cm and a density of 100 plants per square metre.
  - The most suitable time for sowing quinoa is from February to March, using a mechanical or pneumatic seeder.

Picture 3: Cleaning of the quinoa seeds (Source: Beotanics)

- **Best practices for managing the chosen crops:**
  - Soil analysis.
  - Proper fertilisation, based on soil and plant needs.
  - Proper sowing (on time).
  - Preventive control against pests and diseases.
  - Regular irrigation.
  - At least three mechanical weedings.
  - On-time harvesting.
- **Best practices for harvesting the chosen crops:**
  - In August, with a mechanical harvester.

CONTACT

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