

Macroalgae for an increasing organic market

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Organic consumption and production are steadily increasing since 1985 and have been given political priority in several Nordic countries. Today one will also realize that macroalgae play an innovative role in The New Nordic Cuisine: wealthy content of the macroalgae makes it attractive for consumers concerned about food origin and content. Often these attentive consumers are also related to the organic market.

A growing market (Fig.1)

In Sweden the organic area shares 14 % of the total agricultural area ¹. The Danish market shares of organic products are at 7 % placing Denmark in the second place on the top ten-list in Europe: Danish consumers spend 142 EUR per capita per year buying organic ¹. The data from Norway are lower respectively 6 % organic area off all agricultural land and consumption is only 1 % of market shares ². The goal for the Norwegian Department of Food and Agriculture is to reach 15 % shares of both production and consumption in 2020 ³.

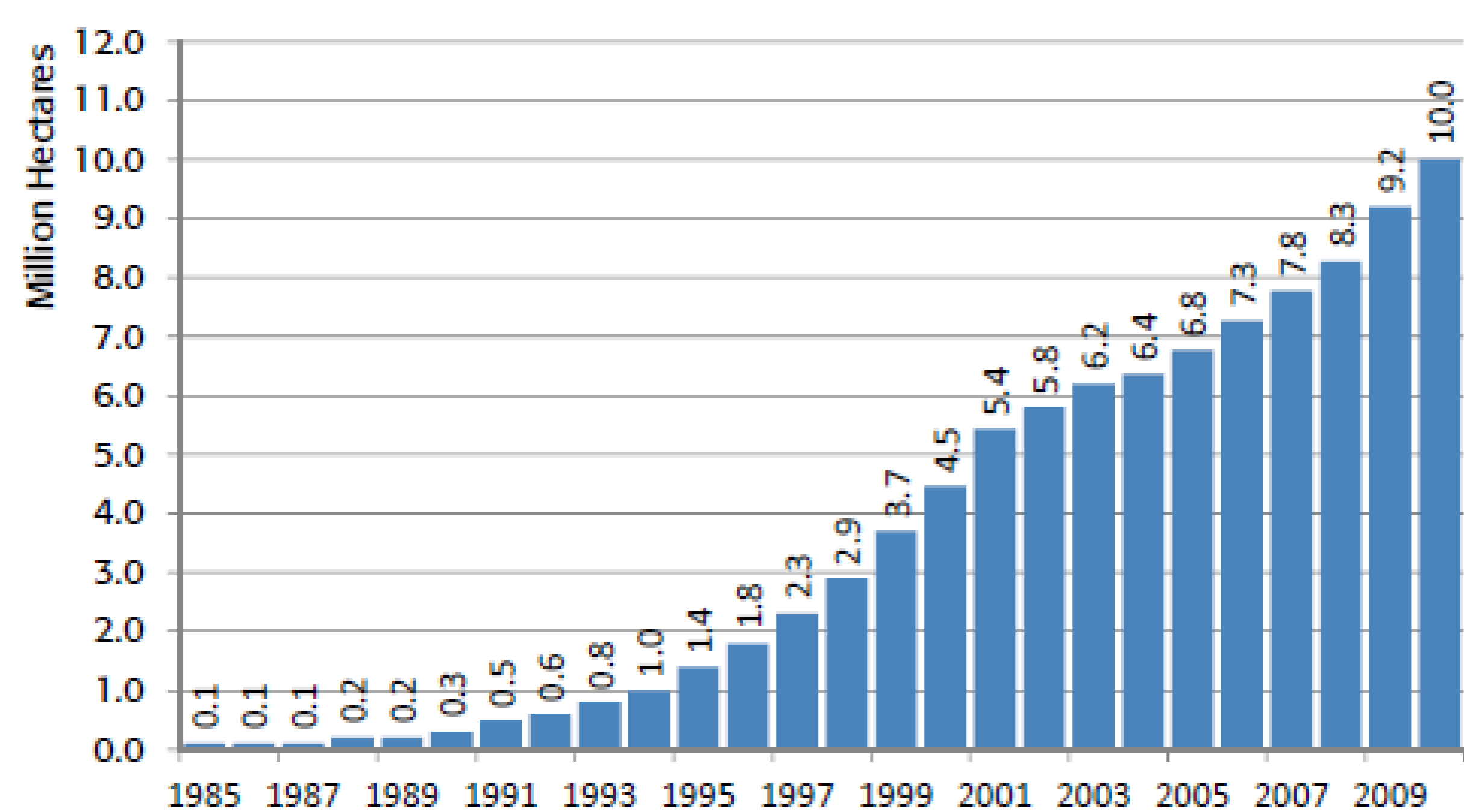


Figure 1: Development of organic agricultural area in Europe 1985-2010 ⁴

State of the art in Norway

Organic agricultural area

- +114% in 10 years⁵

Market shares⁶

- organic eggs 32,4%
- organic baby food 20,8%

National campaign

- consumers buy more organic food with less artificial additives
- newly launched organic certification for restaurant and kitchen

National objective 15% organic production and consumption in 2020

What is macroalgae?

Macroalgae are multicellular green, red and brown algae. The algae forest is extremely important for aquatic populations and consequently for fisheries. Harvesting of one species affect the entire ecosystem and requires a management plan (Fig. 2, 3, 4).



Figure 2: Seasalad *Ulva lactuca*

A rich ingredient for human food

A large variety of antioxidant compounds have been identified in macroalgae species. Macroalgae contain proteins varying from between 3 -15 % of dry weight in brown algae and 47 % of dry weight in green and red algae⁷. In general macroalgae only contains between 2-4 % lipid off dry weight which high proportion of polyunsaturated fatty acids including omega 3 and omega 6 ⁸. Some species as the seasalad (*Ulva lactuca*) is richer in iron than eggs and spinach (Fig.5). Another specie Nori *Porphyra* spp is as rich as dairy products when it comes to content of vitamin B₁₂ ⁷.



Figure 5: Ingredients rich in iron and vitamins



Figure 3: Dulce *Palmaria palmata*

What is needed for an organic certification of algae?

The European Union has outlined some indicators for the culture of organic macroalgae

- Regulation No 710/2009⁹, No 889/2008¹⁰ and No 834/2007¹¹

Organic standards requires the following:

- Sustainable updated management plan
- Renewable energy sources and recycled material being preferred
- Harvesting carried out without any harm to the aquatic environment
- Cultivation must utilize naturally occurring nutrients in the environment or from organic animal production
- Cultivation must be part of polycultural system
- Organic and non-organic macroalgae kept separately
- Conversion period from traditional to organic farming is 6 months or a life cycle
- Drying must not be done in direct contact with flames



Figure 4: Rockweed *Ascophyllum nodosum*

References

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