“THE ROLE OF DAIRY CATTLE IN THE FUTURE FARMING SYSTEM”

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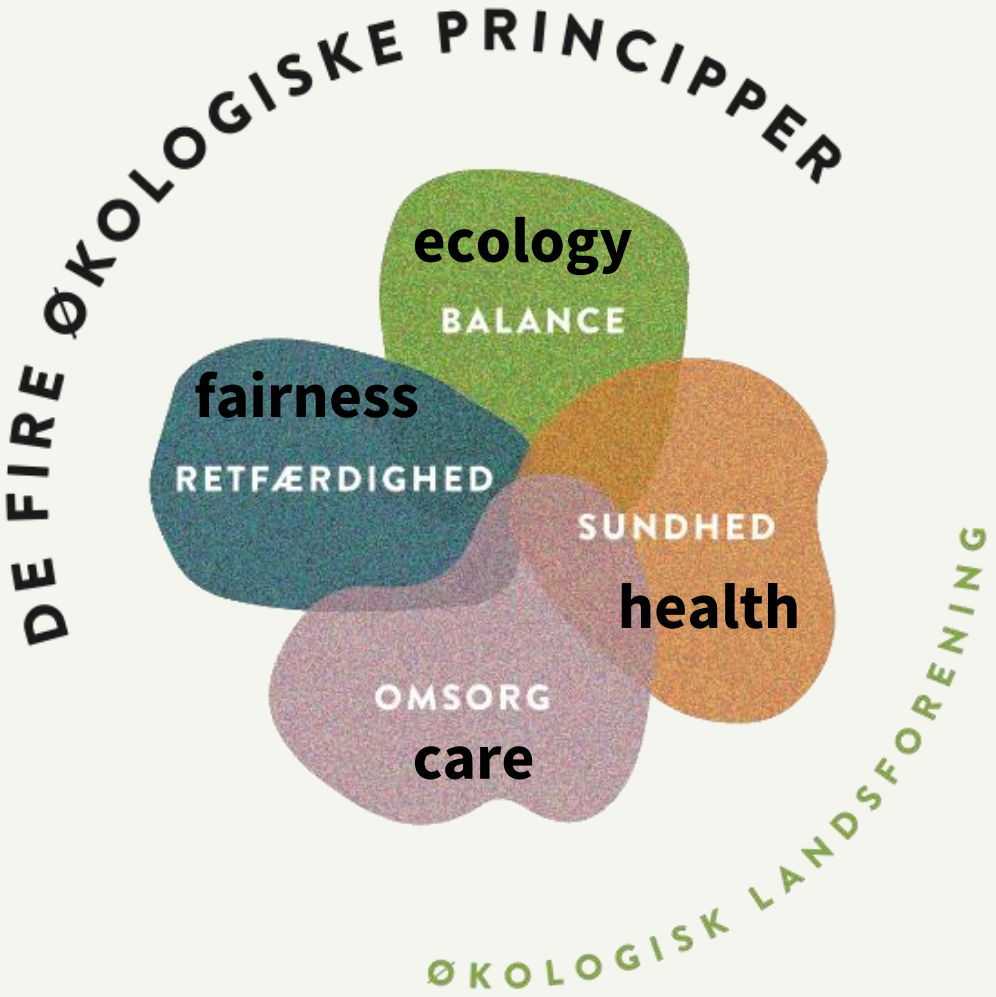
The four principles of organic agriculture



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THE DAIRY CATTLE SYSTEMS CONVERT INEDIBLE PLANT MATERIALS AND MARGINAL LAND INTO

- **Food** – fresh meat and milk and a range of processed (frozen, salted, dryed, smoked, fermented) and storable products
- **Feed, fiber, fuel** - bone meal, leather, tallow
- **Fertility** and diversity –building soil and adding living complexity below and above ground to the grazing system




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Systems	Historical past	Recent past	Conventional future	Organic future
Grazing and summer feeding	Binding, herding, remote summer pastures	Cows on clovergrass in the rotation and heifers grazing wet meadows	No grazing (feedlots)	Primarily grazing meadows or permanent pastures and secondarily fields in rotation on arable land
Feeding, winter	Pastural species mixtures hay and coppice from field borders and forrestmeadows	Clovergrass mixtures and pastural species mixtures	Grass and maize silage + concentrate + additives Cut grass during summer	Clovergrass silage, hay and coppice from agroforestry (possible concentrate home or locally grown)
Stable	Binding	Binding	Loose housing	Loose housing
Milking	Hand Primarily summer	From hand to maschine	Maschine/robot	Maschine/robot potential mobile
Genetics	High diversity Local populations and adaptation	Fewer types Combination races	Global strains with focus on quantity and climate	Multipurpose genetics, variation, stability and quality

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Future effects	Organic vision	Conventional vision
Climate	Systems optimization af carbon and nitrogen cycling	Optimization of emission per unit but more units
C-sequestration	Humus + and carbon-fix in living/dead biomass	Less emphasis
environment	Clean waters	Defined strictly by regulation means
Biodiversity	Increased variability (diversity, abondance)	Defined strictly by regulation means
Waters	Clean	Pesticide residuals, nitrogen
Resources	No feed import, no chemical fertilizers	Import, chem. fertilizer
Landscape	Grazing animals widely distributed in certain landscape elements and agroforestry	Factory like buildings concentrated in certain regions in west
Farms	Local cooperation and development	Continuously falling numbers
Quantity prod.	Less per cow/farm/national	More per cow/farm/national
Quality prod.	Fatty acid composition, secondary metabolites etc.	diff. biochem.
Health	Low antibiotic use, reduced resistance risk	Antibiotic use, increased resistance risk
Welfare	Open air and space, cow and calf together	Closed systems, separation day one
GMO	no	yes
Consumers	Value higher standards and prize to a certain limit	depends on regulations, subsidies and marked
Society	internalization -> higher value of common goods	Externalities are not internalized

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WATER – PLANT SUBSTITUTE – WHOLE MILK

5-23 kr

22 kr

11-17 kr

The grazing cow may drink 100 l water and eat 80 kg grass per day

The prize should reflect the ressources used
There is room for improvement and
a true redesign of the dairy cattle and farming system

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DAIRY CATTLE IS CRUCIAL FOR FUTURE FARMING UNDER OUR CLIMATE AND SOIL TYPE CONDITIONS

Large scale analysis and modelling of scenarios with

- dairy cattle distributed across the country and concentrated in landscape types with marginal lands
- increased plant production for direct concumption (pulses, bread grain, vegetables, berries, fruits, nuts)
- plants, bushes and trees industrial purposes
- higher proportion of nature elements within the agricultural areas
- withdrawal of agricultural land to increase area with nature/forest
- biomass and waste recycling (composting, biogas)

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