



"Agriversa NullEmissions - Dairy Cow Barn 4.0" and its "Agriversa Cooperation Association" (AKV)

as a prototype as well as a research, demonstration and
Training stable in the Federal Republic of Germany

BOOKLET

Status: January 2023

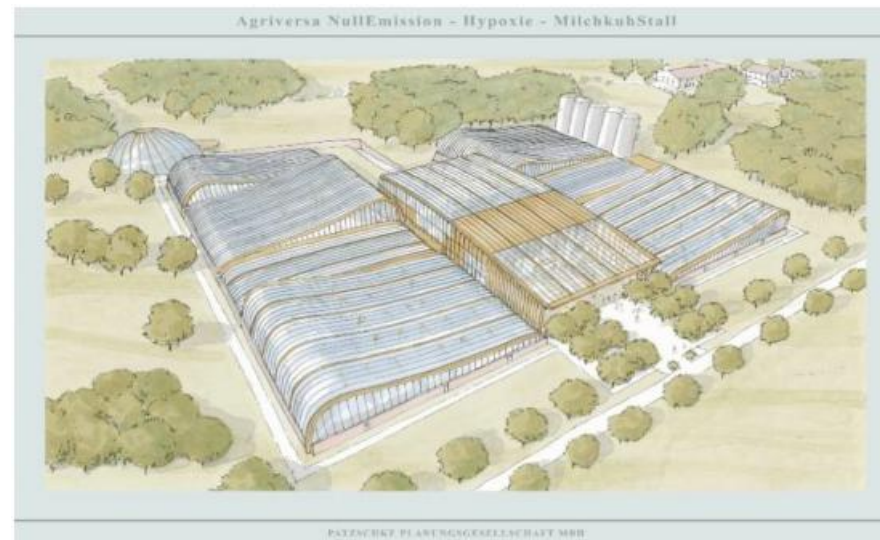


Figure: Bird's eye view of an "Agriversa ZeroEmissions - Dairy Cow Barn 4.0" - ANTA.ANMS-1.000

The "Agriversa ZeroEmissions - Dairy Barn 4.0" (ANMS 4.0),
a more environmentally and animal friendly as well as economically efficient, sustainable producing
dairy barn for dairy farms worldwide!

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Figure 1

ANMS 4.0 with 1,000 cow places, perspective with functional areas

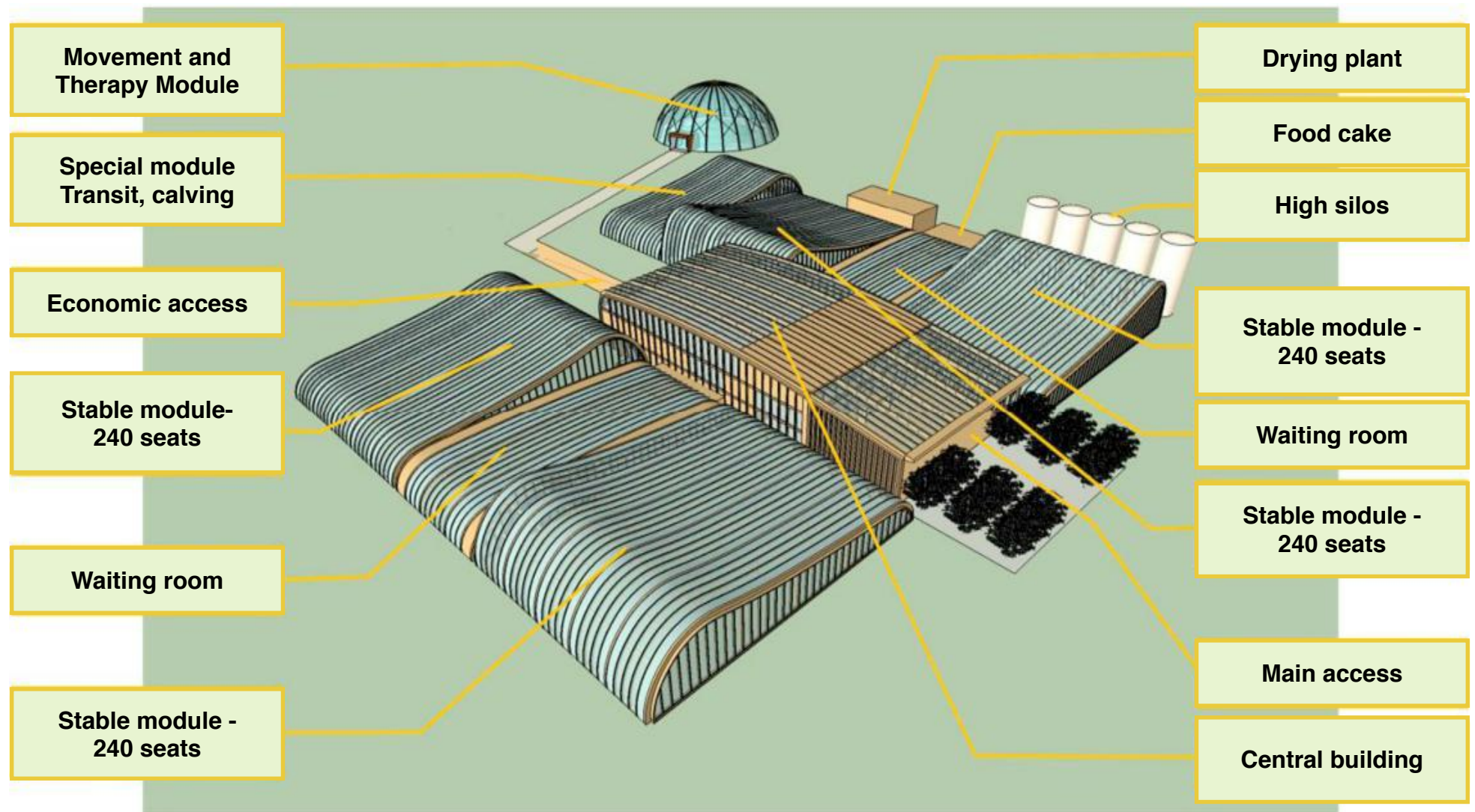


Figure 2

ANMS 4.0 with 1,000 cow places, view NORD - EAST

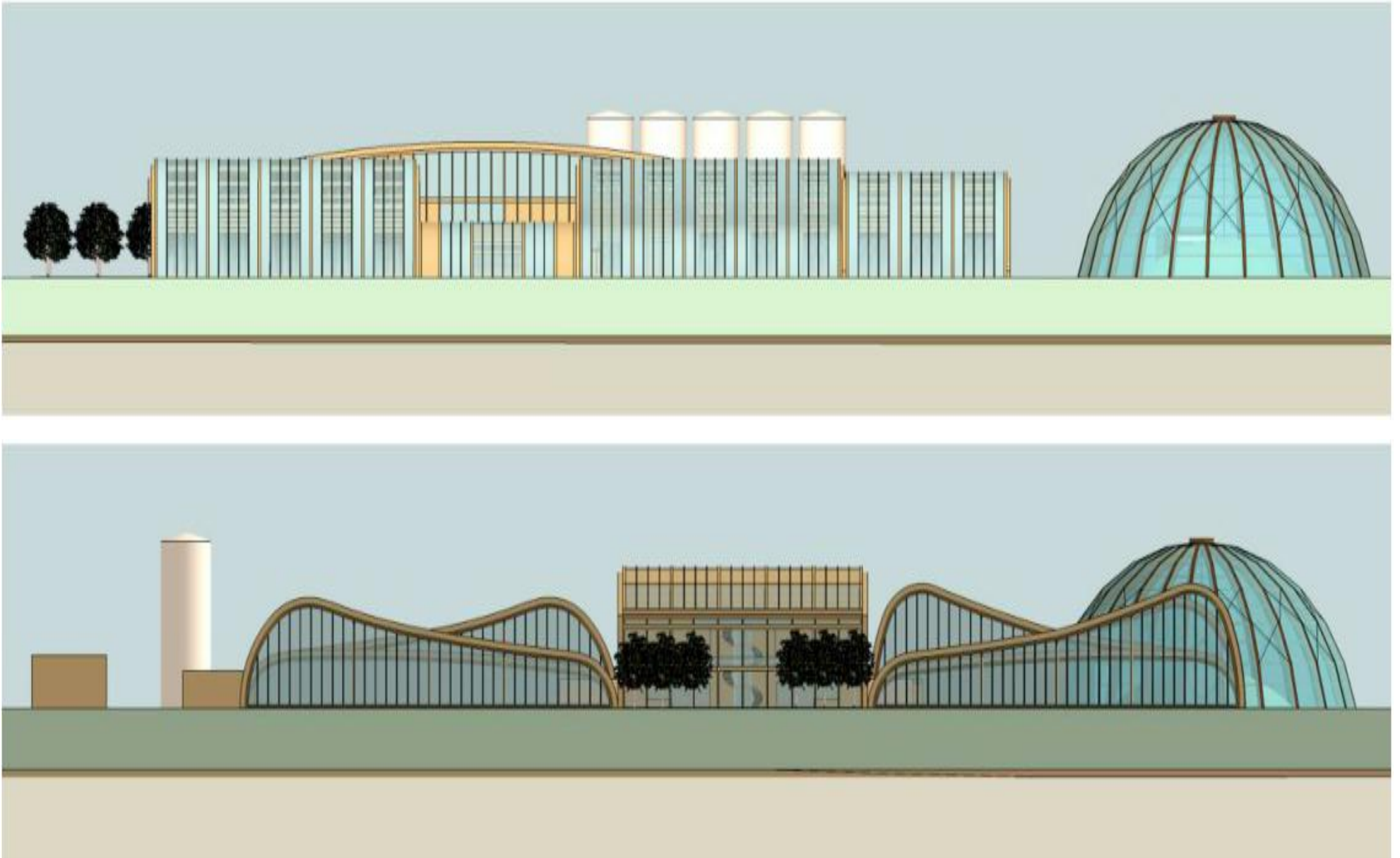


Figure 3 ANMS 4.0 with 1,000 cow places, view SOUTH - WEST

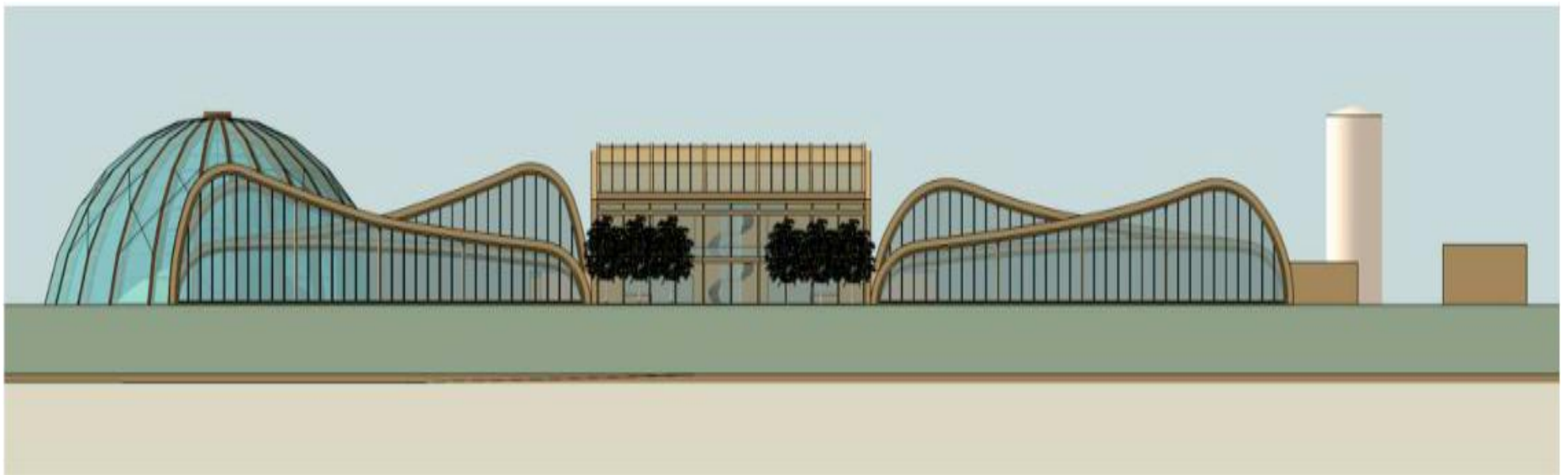


Figure 4 ANMS 4.0 with 1,000 cow places, top view

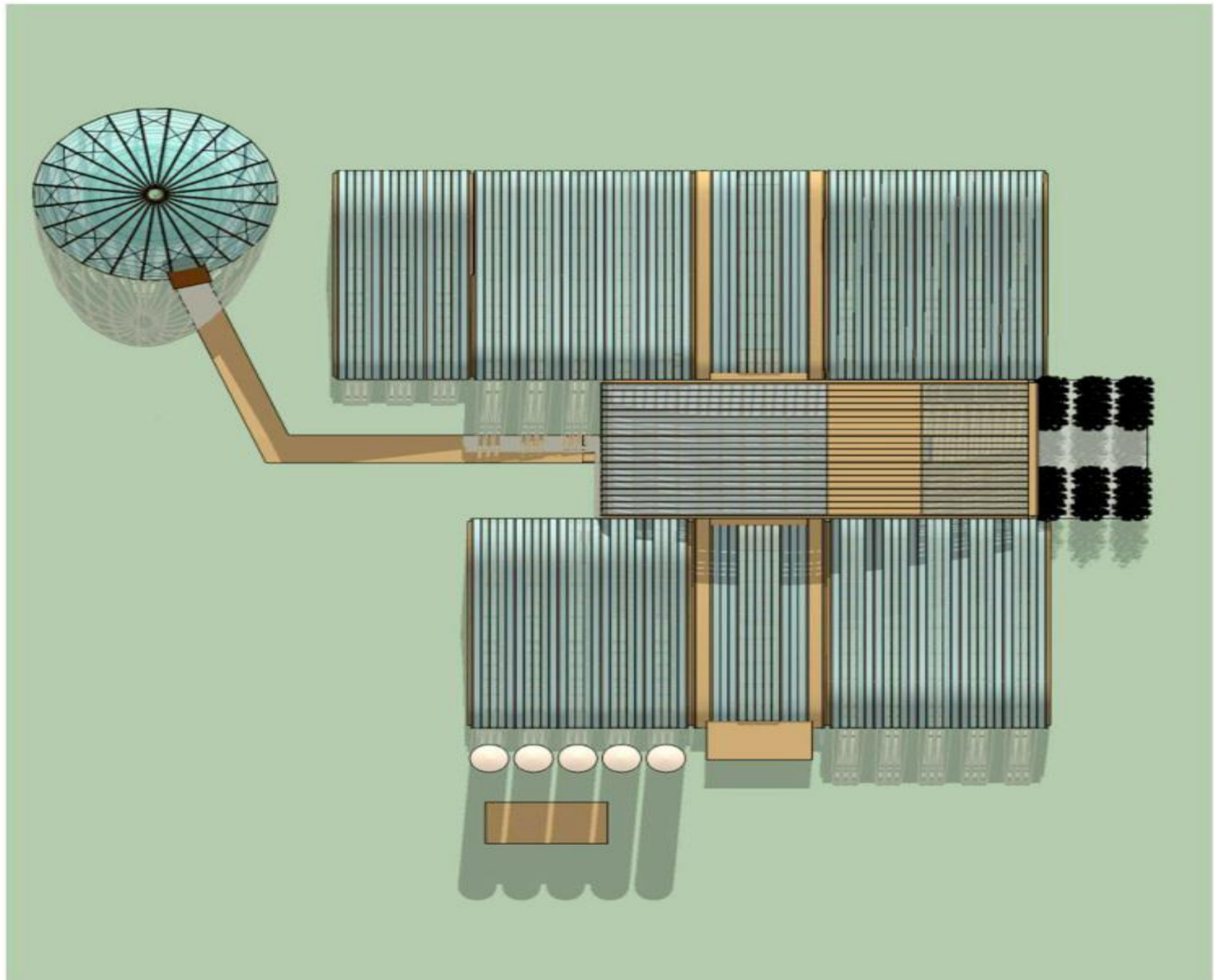


Figure 5

ANMS 4.0 with 1,000 cow places, floor plan

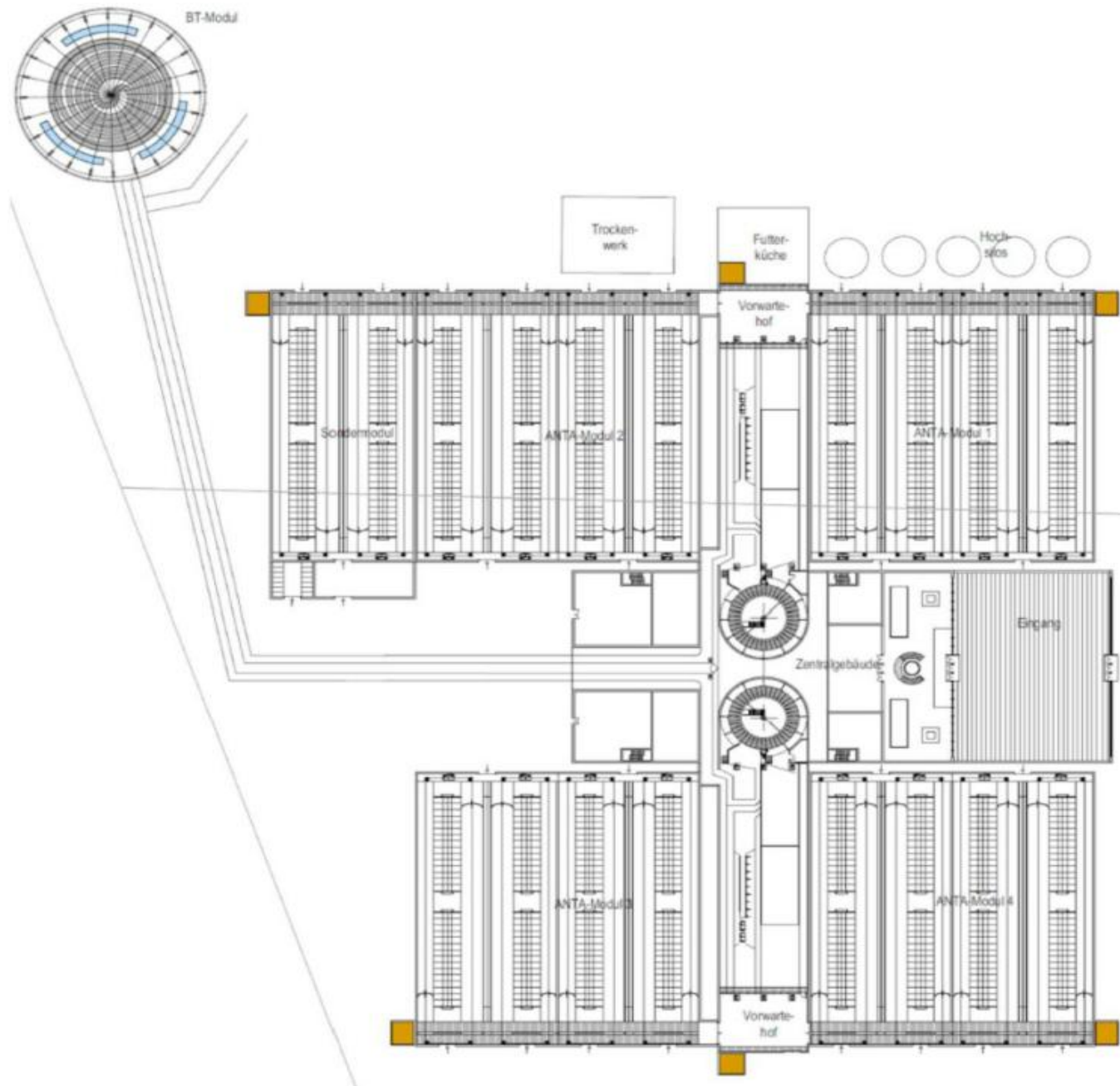


Figure 6

ANMS 4.0 with 4,000 cow places - bird's eye view visualisation



Figure 7

ANTA.ANMS 4.0, Stable module - Visualisation interior view

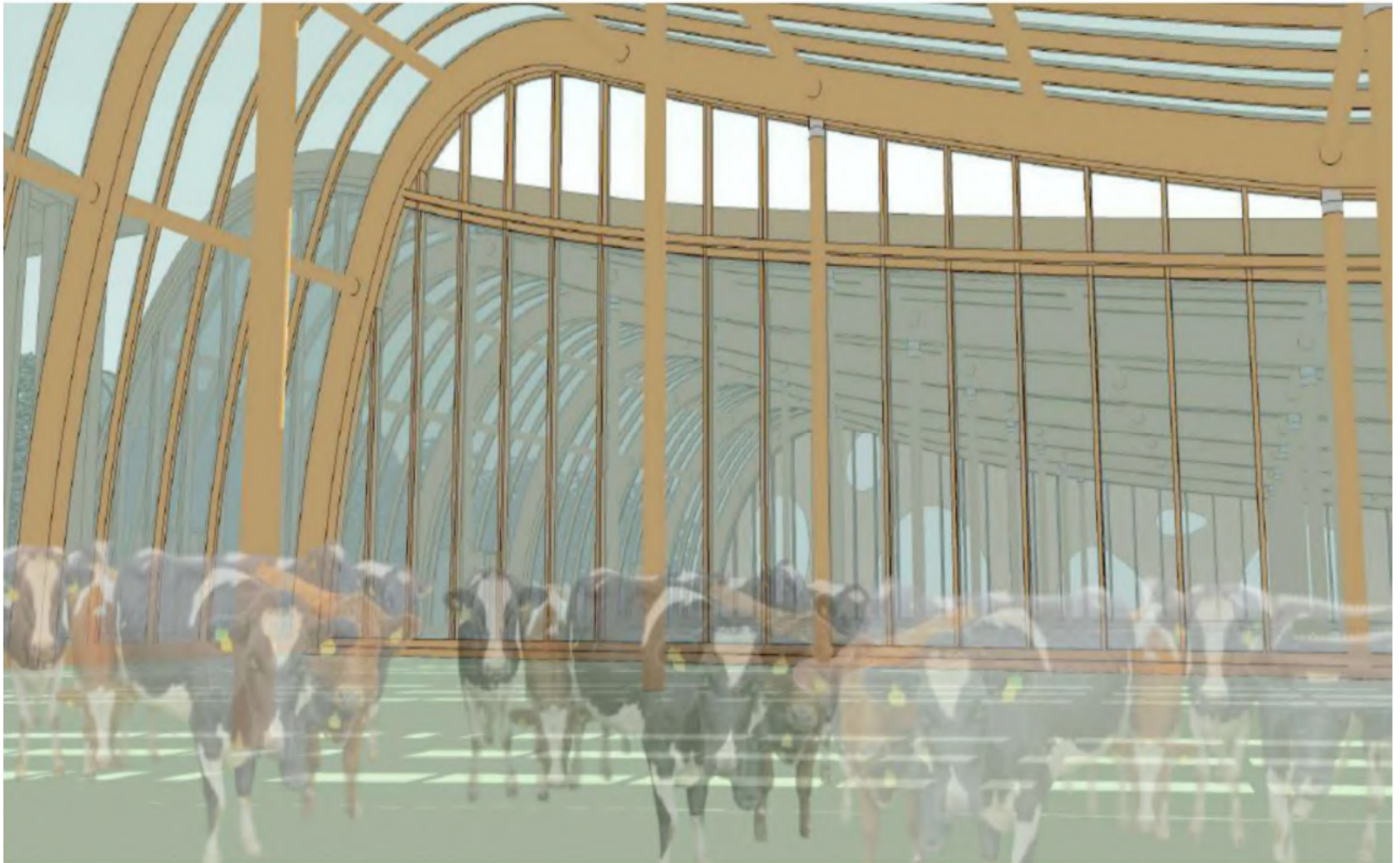


Figure 8

ANTA 4.0 - Movement and therapy module, animation

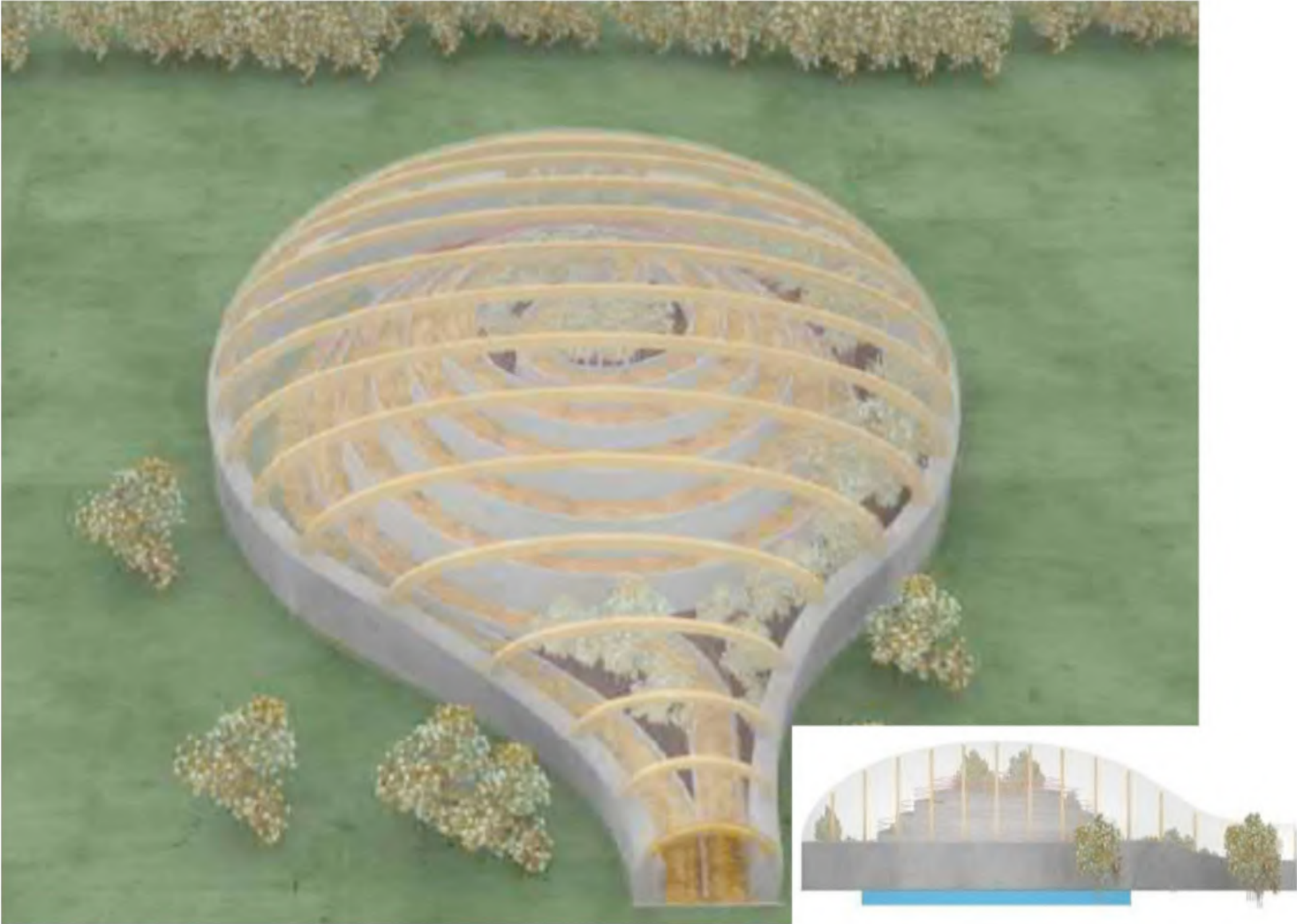


Figure 9

ANTA 4.0 - Movement and therapy module, floor plan

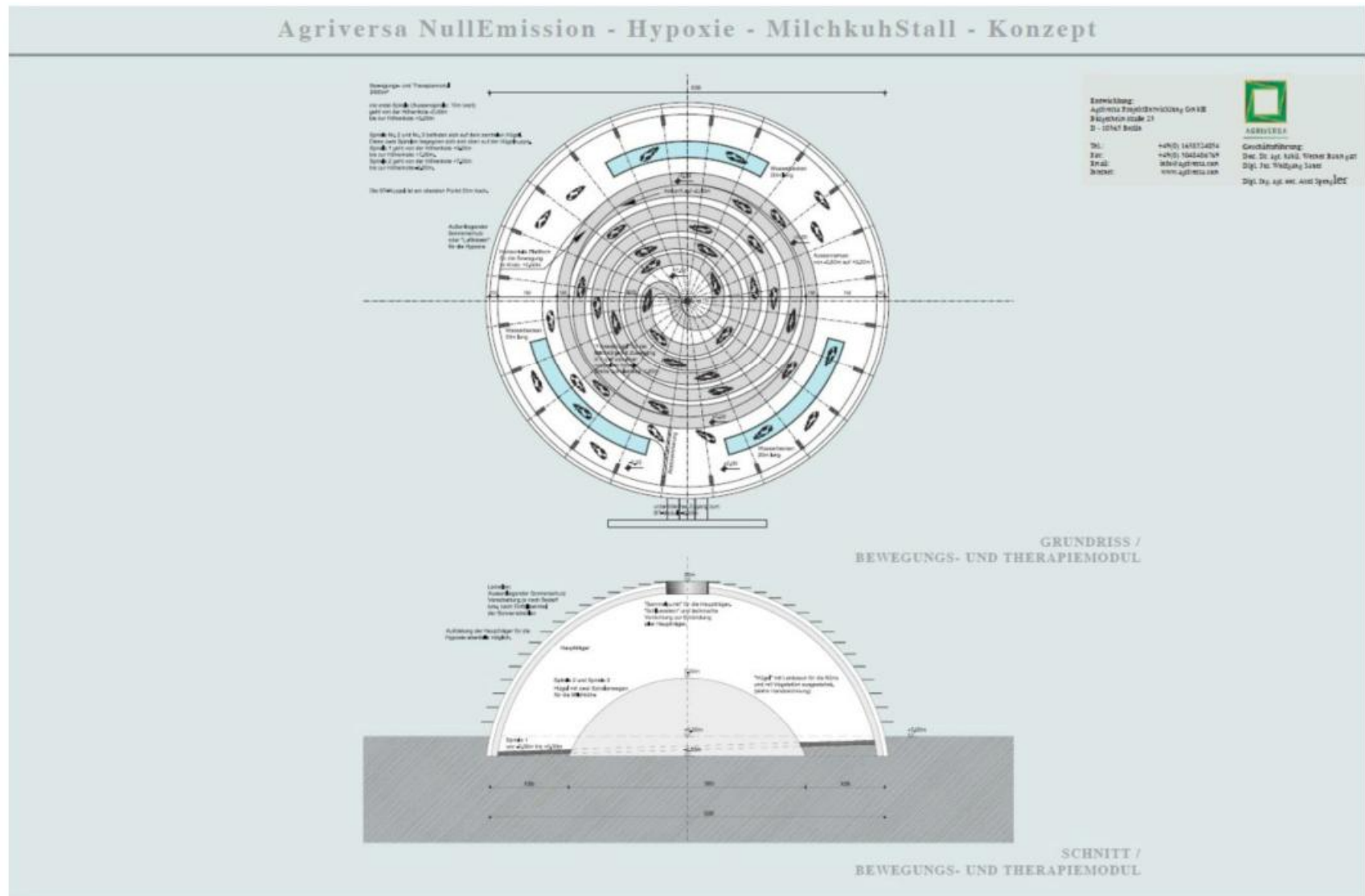


Figure 10

ANTA 4.0 - Movement and therapy module, visualisation interior view

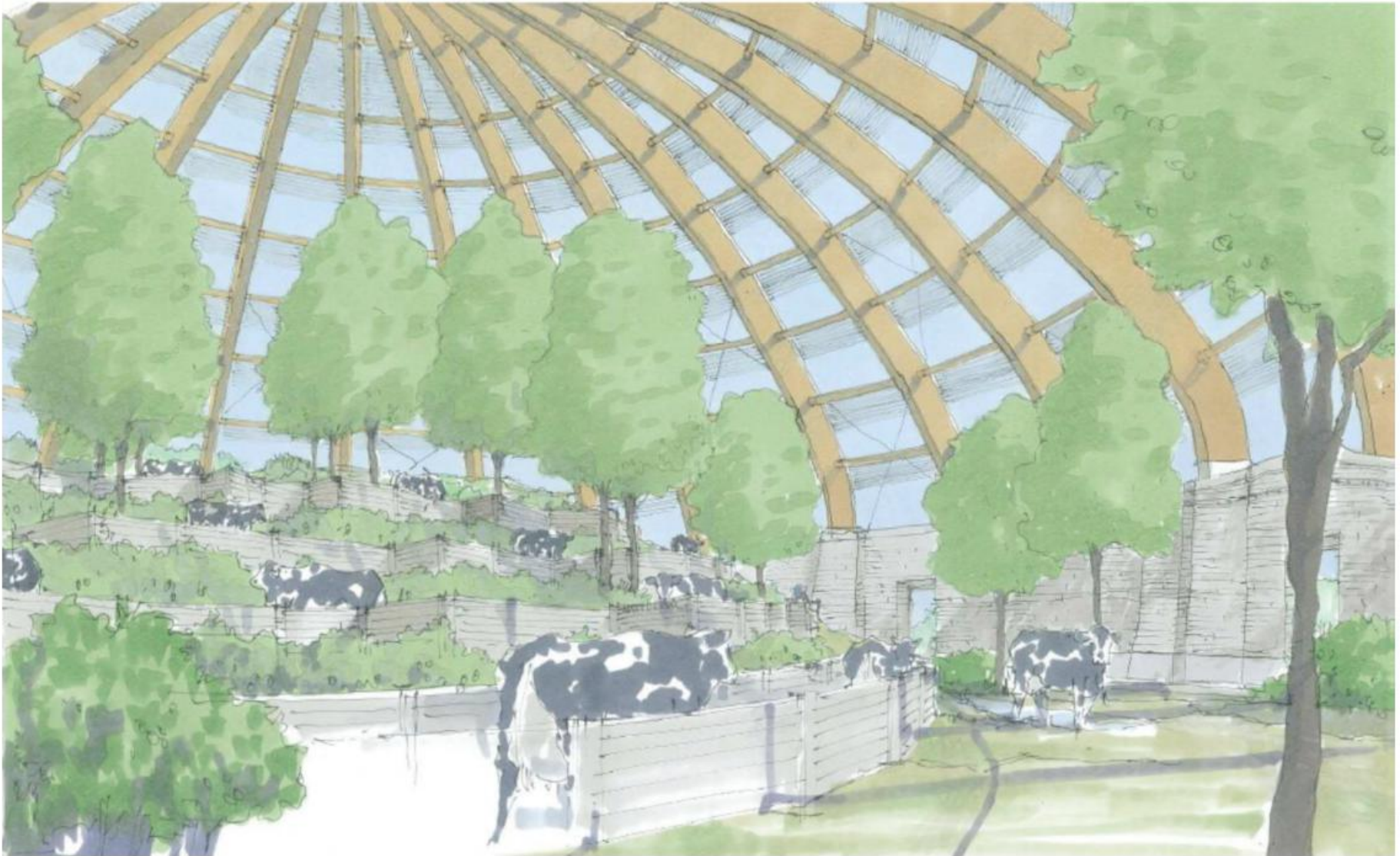


Figure 11 ANTA.ANMS 4.0, entrance area - visualisation



Figure 12 ANTA.ANMS 4.0, milking technology

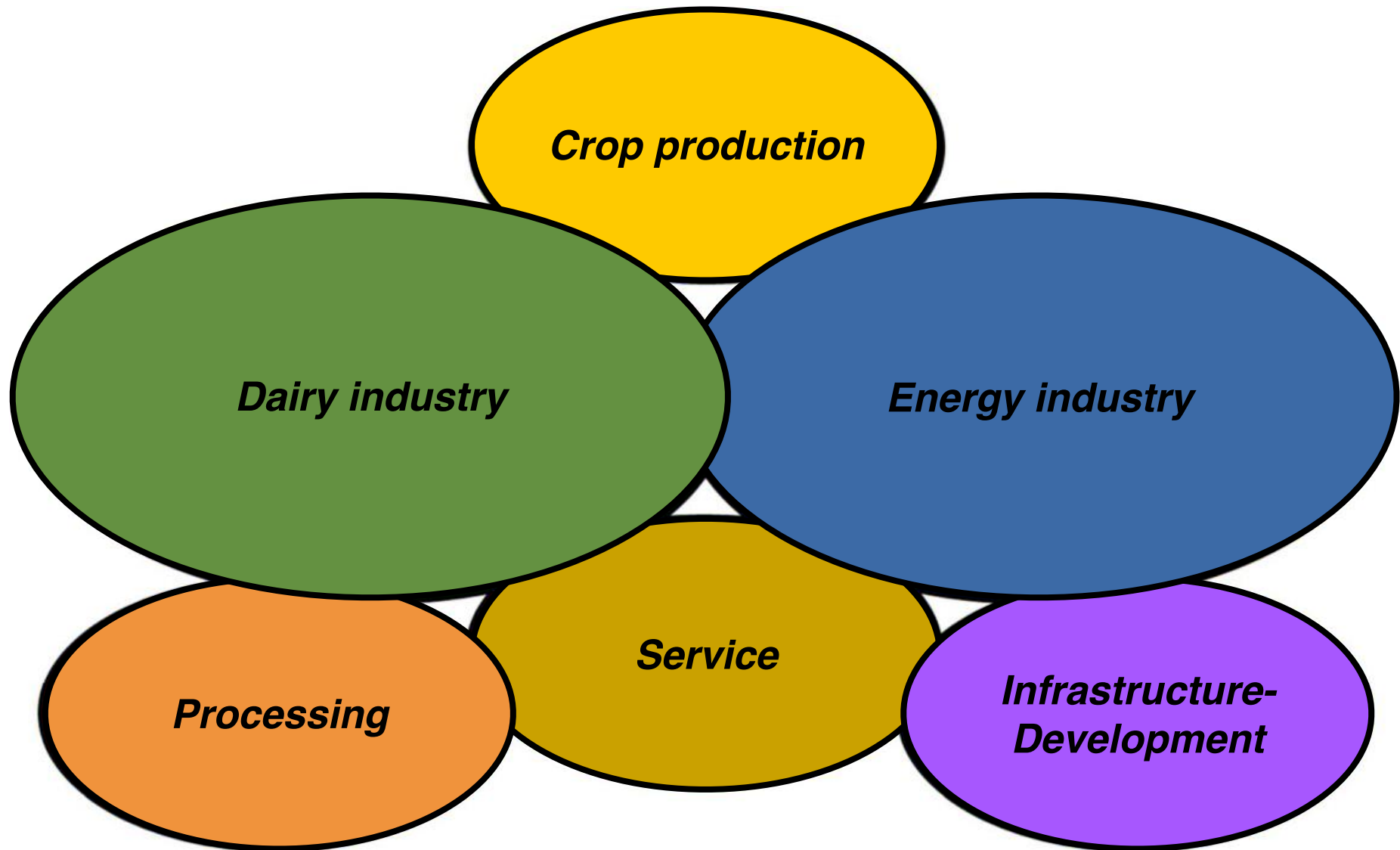


Figure 13 ANTA.ANMS 4.0, Manure and stable technology



Figure 14 ANTA.ANMS 4.0, Feeding technology

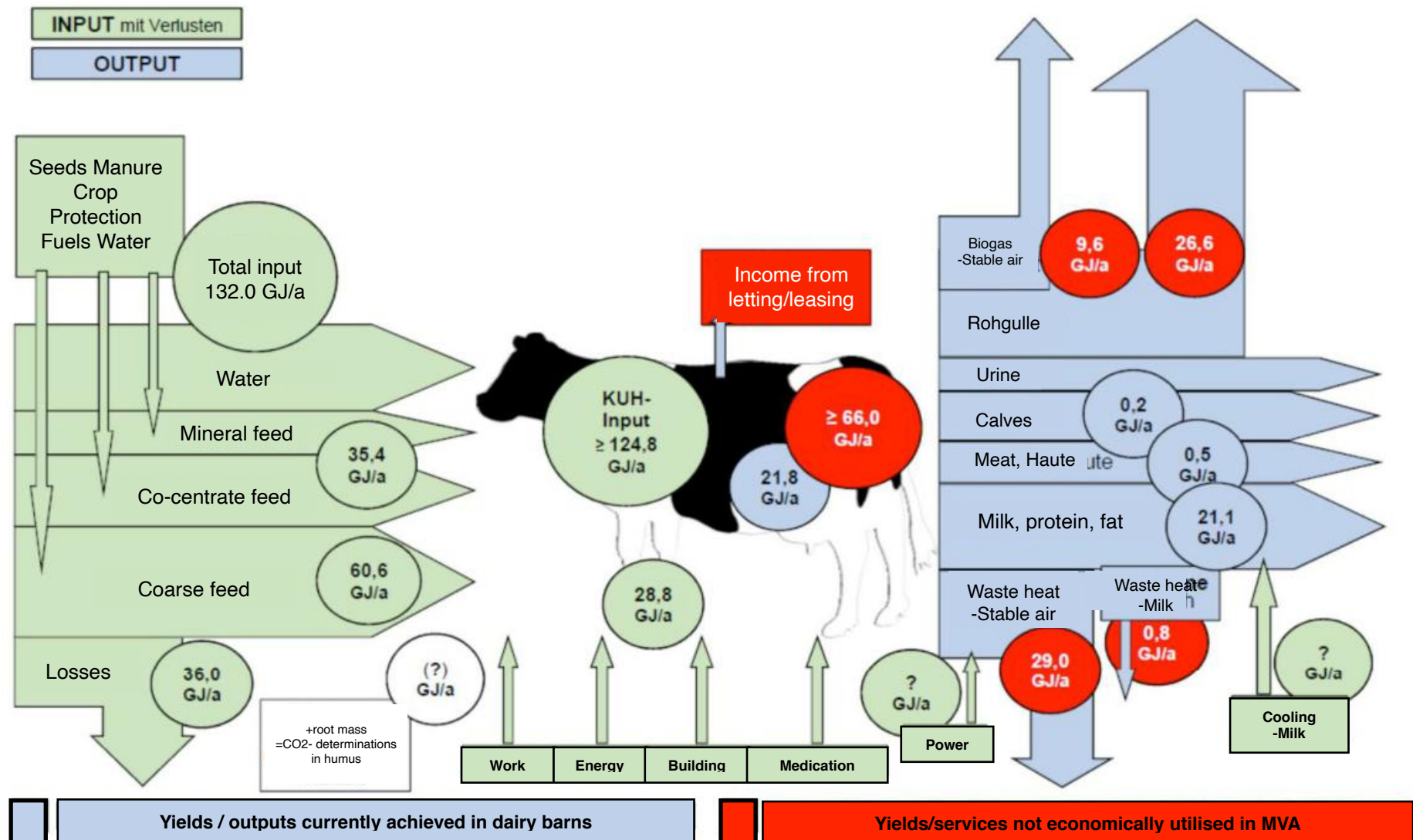




Overview 2.1

"High-performance athlete MILK COW", energy and eco-balance average dairy cow_DEU

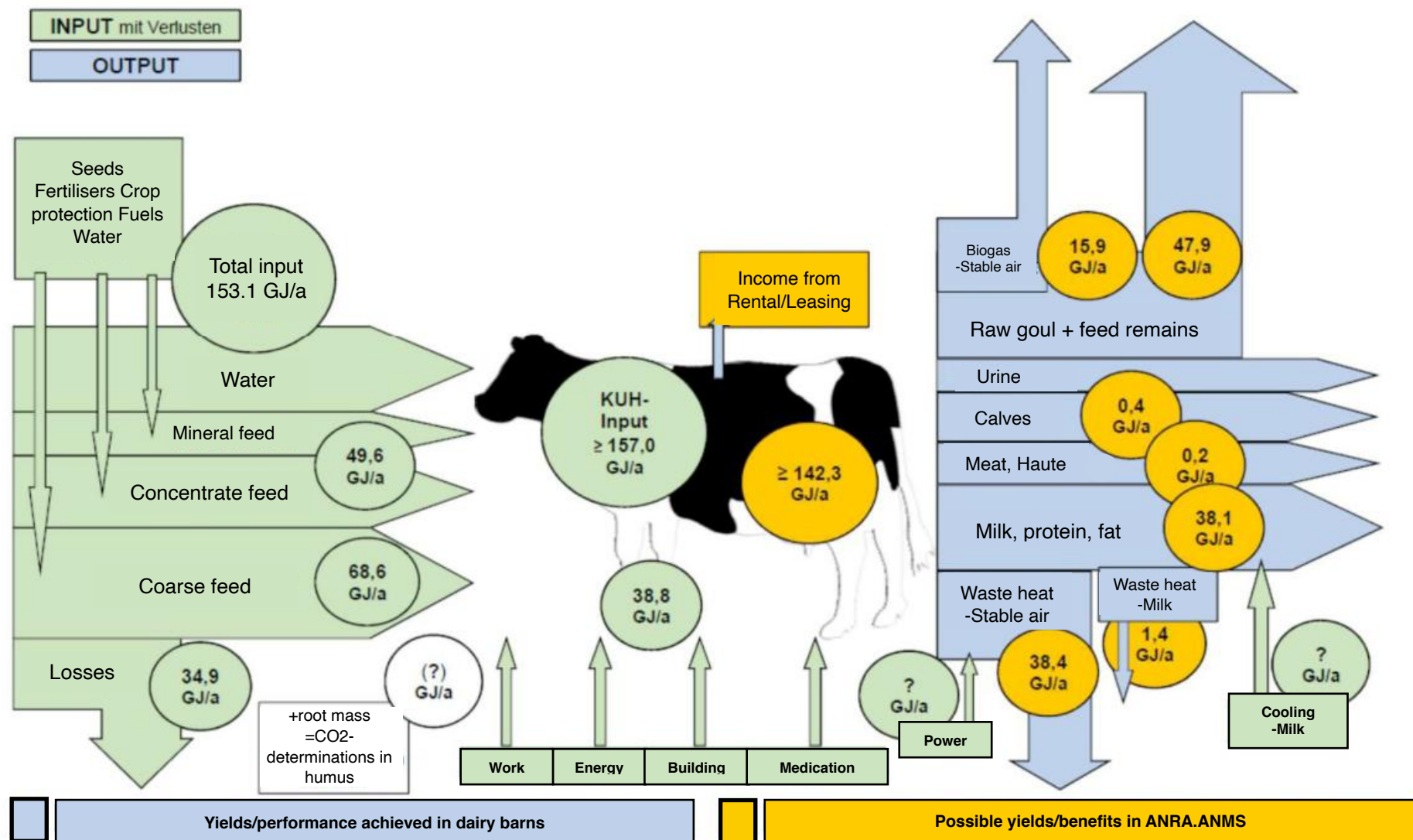
(Basis/source: <http://mediatum.ub.tum.de/export/705438/citation>, 2004; APE, 2018, assumption of economically utilisable milk quantity: 7,740 kg/a)

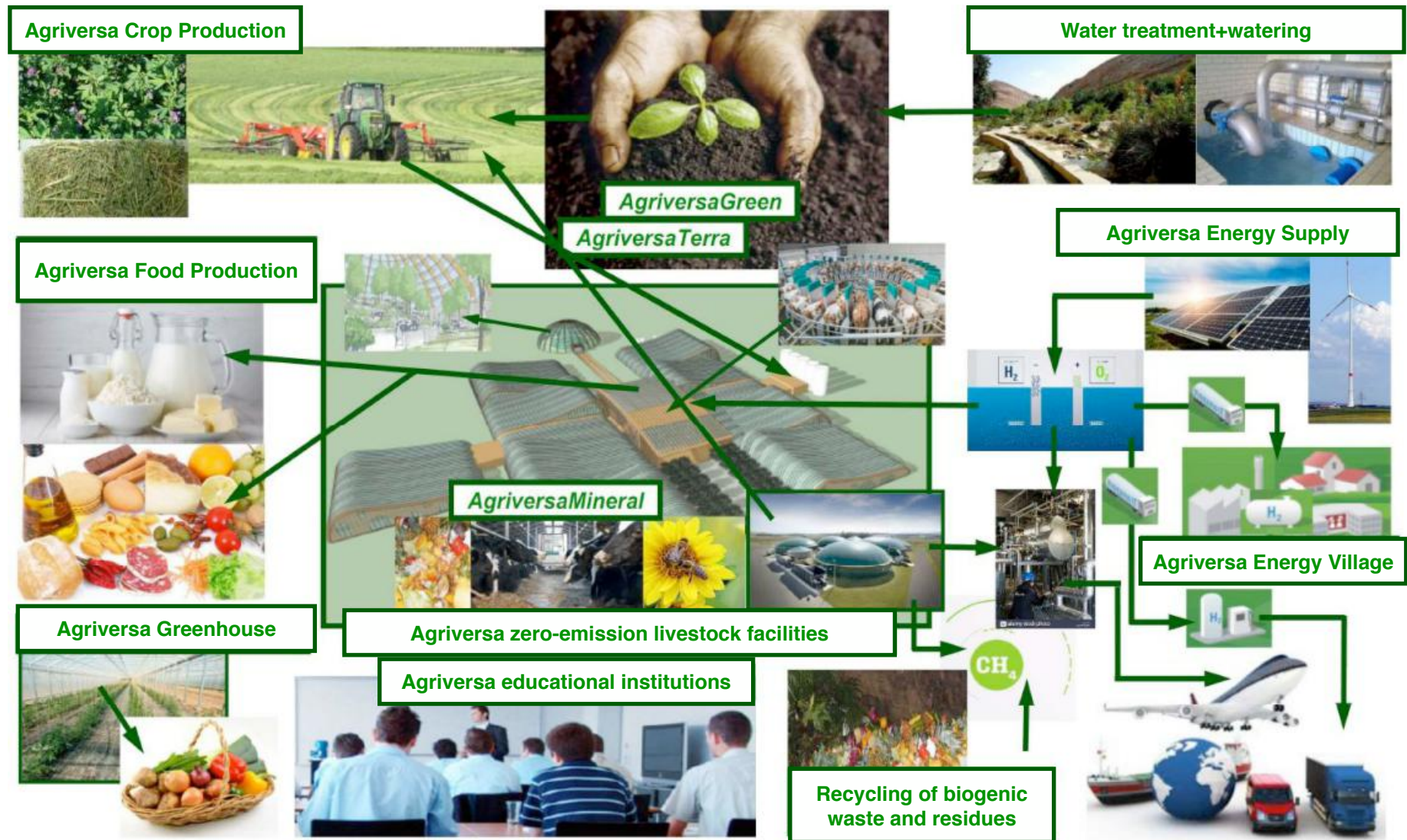


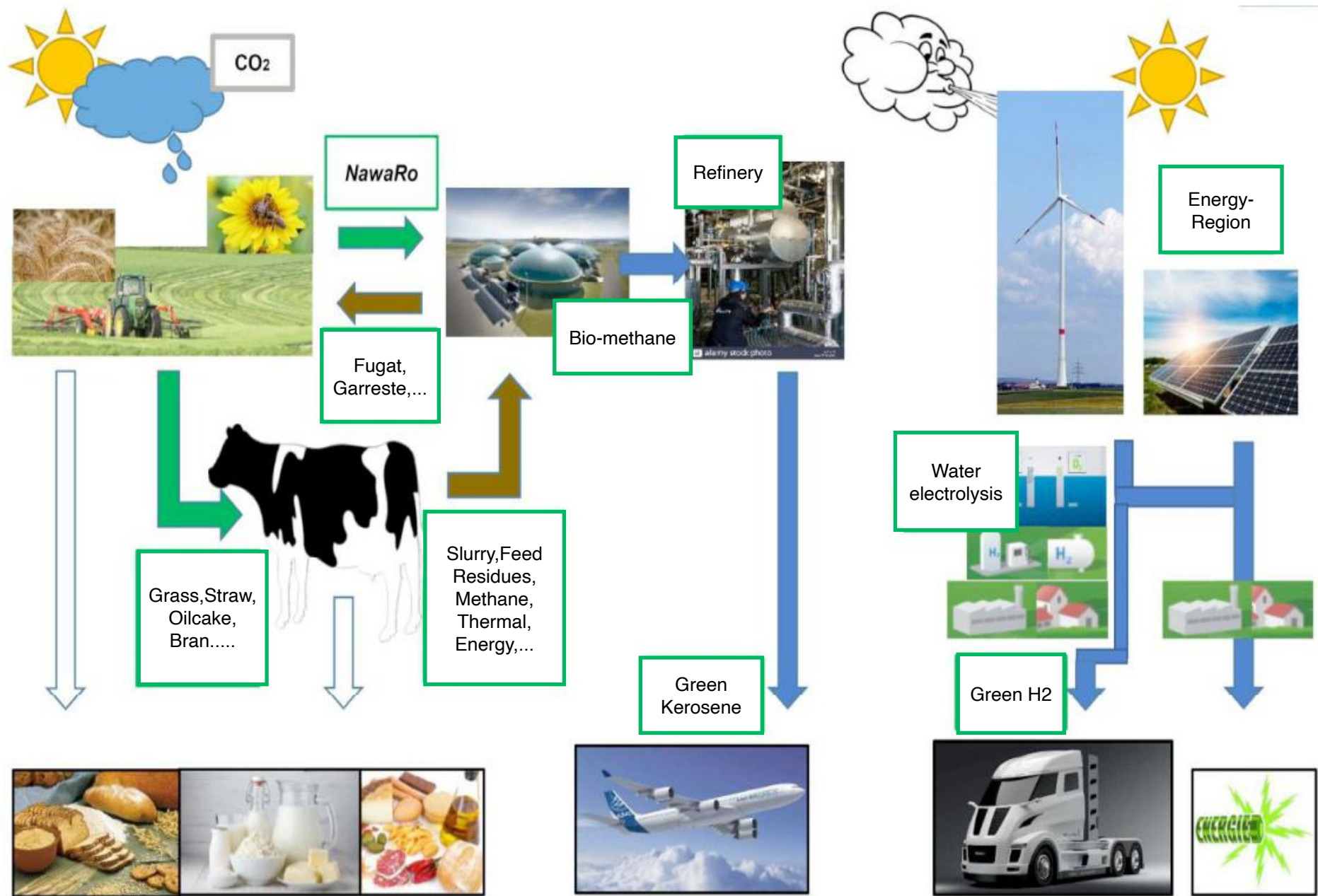
Overview 2.2

"High-performance athlete MILK COW", energy and life cycle assessment ANMS 4.0 dairy cow

(Source: APE GmbH, ANTA.ANMS-2.000_DEU, BWA, October 2018, assumption of economically utilisable milk quantity: 14,000 kg/a)

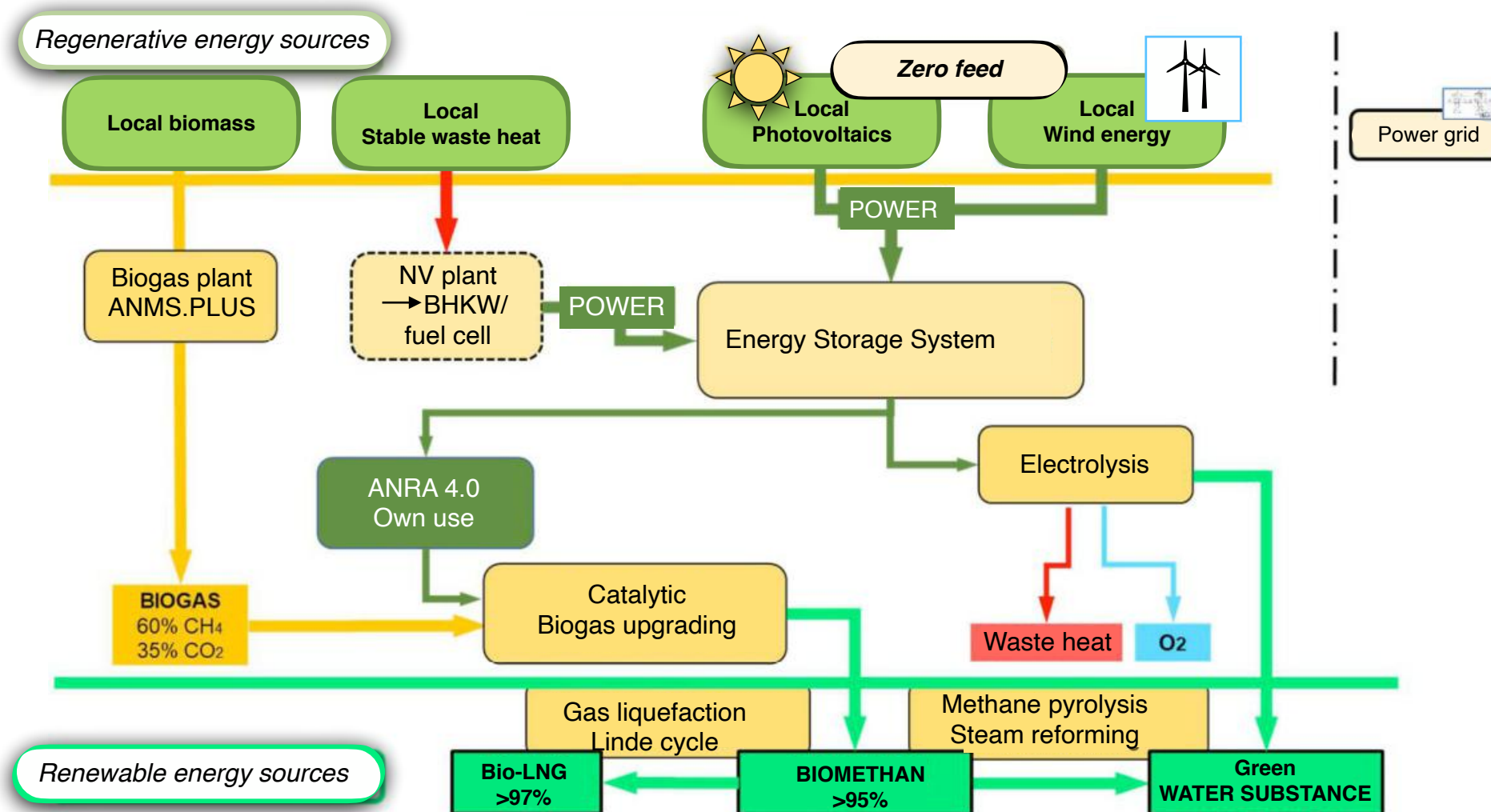


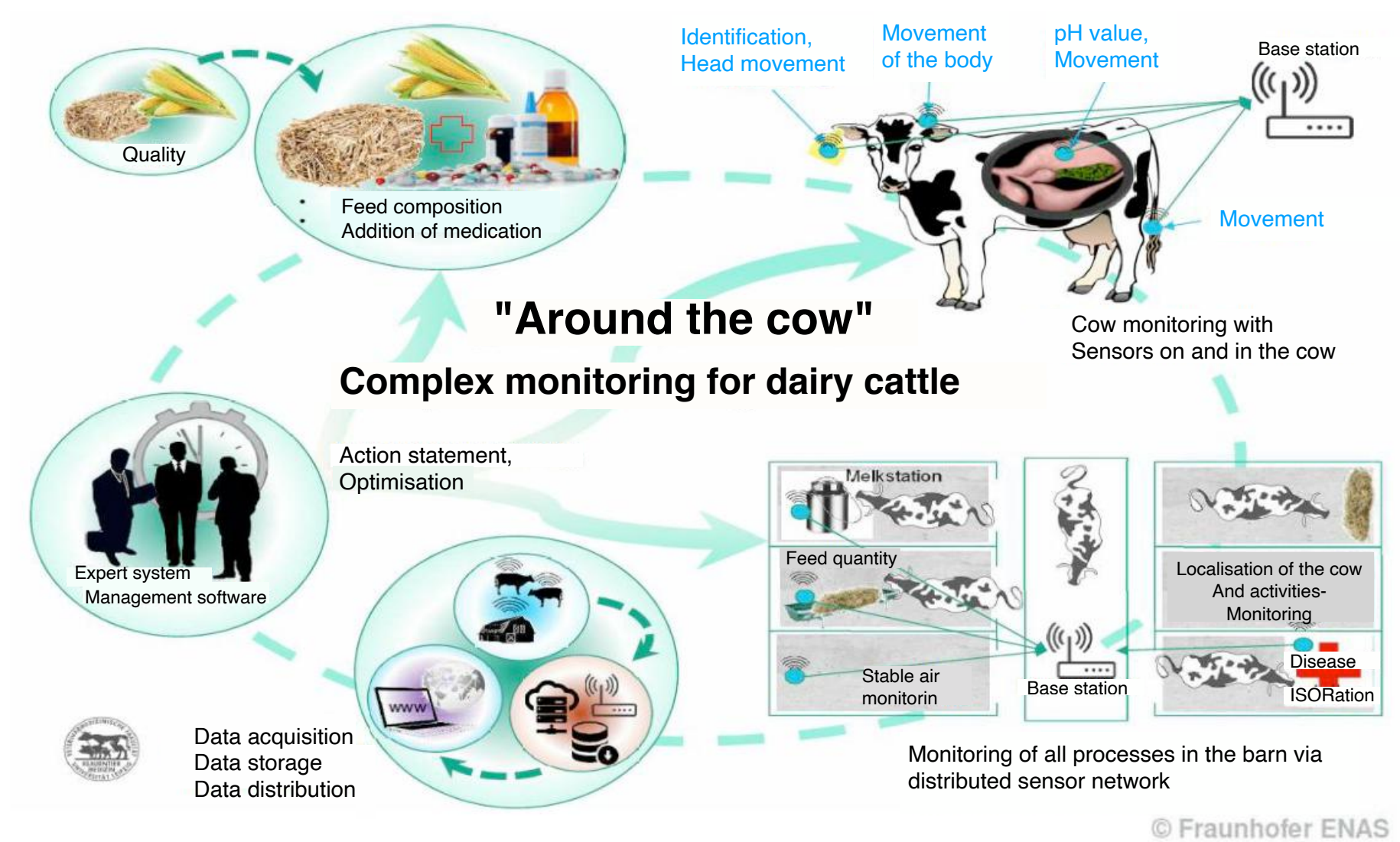




Overview 5

Agriversa Agrar- & Energie-Park: Energy sources - Energy carriers
 (Status: ongoing sub-project conception)





AGRIVERSA Circular economy - MILK ECONOMY

Maximum values of the planned turnover in the "Future Barn ANMS 4.0" with 1,000 stall places

(Status: forecast for the completed ANRA 4.0 project development and before the "Location" pre-engineering procedure!)

ANRA 4.0 Features Dairy and energy industry	Volume balance in the 3rd quarter WY			Turnover in Q3 (net, before tax)								
	per dairy cow							per dairy cow in MVA	per dairy cow ANMS 4.0	per ANMS 4.0 [Stalls]		
	Variable		ME	Variable	ME	Variable	ME	1	1	1.000	ME	
ANRA.ANMS 4.0												
Dairy industry												
Milk production	14.500	100,0%	kg/a					4.794	8.422	8.421.600	Euro	
Market milk	13.630	94,0%	kg/a	0,60	€/kg			4.794	8.178	8.178.000	Euro	
Colostrum	87	0,6%	kg/a	0,55	€/kg			0	48	47.850	Euro	
Industrial milk	783	5,4%	kg/a	0,25	€/kg			0	196	195.750	Euro	
Proceeds from								906	1.282	1.281.692	Euro	
Slaughter cattle	5,05		€/kg	250	€/Tier	15,0%	330	kg/Tier	625	250	249.975	Euro
Breeding and farm animals	7,77		€/kg	672	€/Tier	95,0%	91	kg/Tier	281	672	671.717	Euro
Renting and leasing	10,00		€/m ²	360	€/Tier/a		3	m ² /Tier	0	360	360.000	Euro
Total dairy industry								5.700	9.703	9.703.292	Euro	
Energy industry												
Substrate + biogas from ANMS (→ BGA)	5.253		Nm ³ /a					0	813	813.495	Euro	
Biogas from exhaust air (→ BGA)	566		Nm ³ /a					0	110	110.413	Euro	
Total stable exhaust air	256		Nm ³ /a					0	64	63.875	Euro	
Slurry cellar Exhaust air (raw slurry)	310		Nm ³ /a					0	47	46.538	Euro	
Raw manure + feed residues (→ BGA)	4.687		Nm ³ /a					90	703	703.082	Euro	
Thermal energy from exhaust air (→ BGA)	77.602		GJ/a					0	647	646.680	Euro	
Total stable exhaust air												
Slurry cellar Exhaust air (raw slurry)												
Total energy industry								0	1.460	1.460.175	Euro	
(MVA bzw.) ANMS 4.0								5.700	11.163	11.163.466	Euro	



AGRIVERSA Circular Economy - ENERGY ECONOMY

Maximum values of the planned turnover in the "Future Barn ANMS 4.0" with 1,000 barn spaces
(Status: forecast for the completed ANRA 4.0 project development and before the "Location" pre-engineering procedure!)

ANRA 4.0 Features Dairy and energy industry	Volume balance in the 3rd quarter. WJ			Turnover in Q3 (net, before tax)							
	per ANRA [ha LN total]]							per dairy cow in MVA	per ha LN	per ANRA [ha LN total]]	
	Variable		ME	Variable	ME	Variable	ME		1	3.500	ME
Agrivera biogas plant. PLUS 4.0											
Energy industry											
Input biogas from substrate + co-substrate	17.736.544		Nm ³ /a								
ANMS 4.0 total	5.185.566		Nm ³ /a								
Energy crops	7.310.008		Nm ³ /a								
Biogenic residues	5.240.970		Nm ³ /a								
BioMethane (catalysis)	16.849.717	^{95%}	Nm ³ /a						4.814	16.849.717	Euro
ANMS 4.0 total	4.926.287		Nm ³ /a								
Energy crops	6.944.508		Nm ³ /a								
Biogenic residues	4.978.922		Nm ³ /a								
Thermal energy	77.602		GJ/a						246	862.240	Euro
Power	54.321		GJ/a						172	603.568	Euro
Heat	11.640		GJ/a						37	129.336	Euro
Cold	11.640		GJ/a						37	129.336	Euro
Fugat	2.041		t/a						53	184.604	Euro
Solid slurry	15.197		t/a						152	532.565	Euro
Other											
CO2 certificates											
BioMethane	0,0168	t CO _{2e} /Nm ³		65,00	Euro/t	16.849.717	Nm ³ /a		5.249	18.372.510	Euro
Agrivera BGA. PLUS 4.0									10.515	36.801.635	Euro
ANRA - "ANMS 4.0" site								5.700	21.678	47.965.102	Euro

