"Peace and space in the barn ensures healthier livestock. At the boxes there is sufficient stretching space when getting up and with waterbeds there is good lying comfort for the cows"

"Despite being able to install almost all of the phosphate, fertilizer disposal is a major cost item due to nitrogen. Phosphate also leaves the company with the manure. With the low phosphate levels of the soil, this is a major disadvantage. The BES may be able to offer a solution."

"Every week I make a round over the plots to determine the grass growth. In this way, summer barn feeding and silage can be optimally planned."

Pilot farmers are also members of the Dutch project Cows & Opportunities. In this project 16 dairy famers. KTC De Marke. Wageningen UR and advisory services cooperate. On request of the ministry of Agriculture and the Dairy Board the project evaluates and improves the effectiveness and feasibility of the (proposed) environmental legislation in farm practice and supports the Dutch dairy sector with its implementation. Cows & Opportunities works at a future for neat dairy farmers. The results are found at: www.koeienenkansen.nl (in Dutch).

Pilot farm

Maurice en Ankie van Erp

Maren-Kessel

FARM STRATEGY:

- *Developing a future-proof company; economic and social*
- *Land and number of cows in balance*

FARM CHARACTERISTICS (2021):

Soil type	heavy river clay
ha grass	64,32
ha maïze	1,70
Cows	155
Young stock	53
Young stock/10 cows	3,4
Quota (kg)	1.509.471
Milk production (kg/cow/yr)	9.713
Intensity (kg milk/ha)	22.863
Concentrate use /cow/yr	2.326
Caroussel indoor milker	28 stands
Ligboxenstal	2x
cubicle shed	
4 large straw pens for calves	
3 departments single boxes for Nukas	

MIJLPALEN:

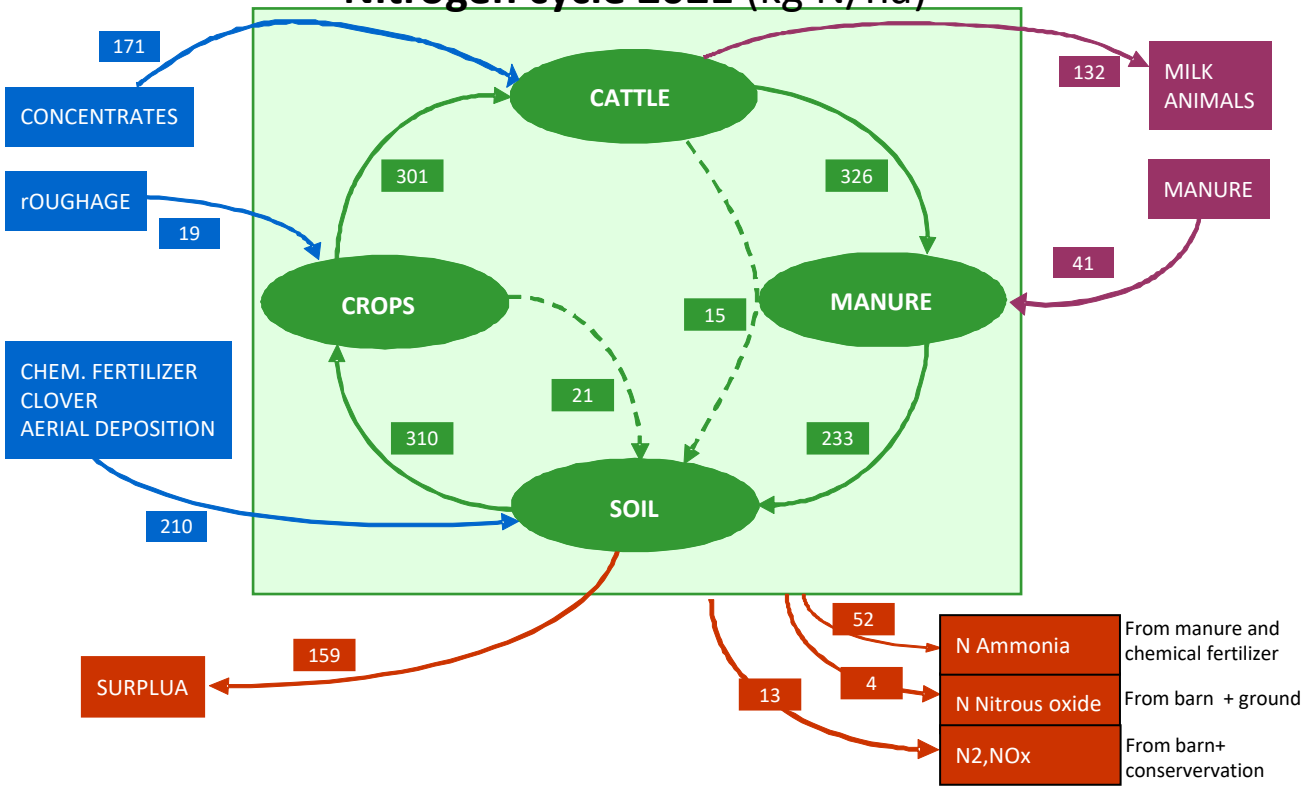
1997 - Partnership with parents
2001 - robotic milking
2004 - Company takeover
2007 - Barn extension with fully traditional milking
2013 - Summer stable feeding
2018 - Participant Koeien & Kansen
2019 - grazing cows again

Fertilization 2021

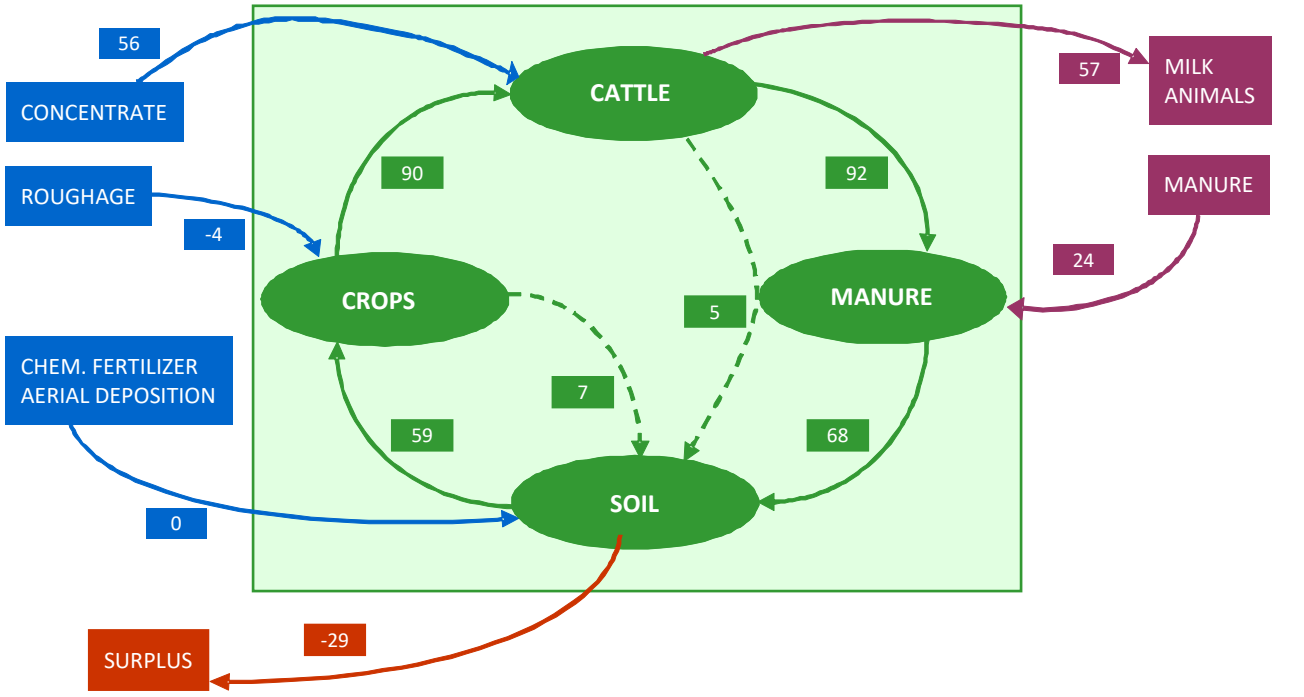
(per ha)	Grassland m³	Grassland kg N	Grassland kg P_2O_5	Maizeland m³	Maizeland kg N	Maizeland kg P_2O_5	Agriculture m³	Agriculture kg N	Agriculture kg P_2O_5
Slurry*	74	246	67	51	202	30	0	35	52
Chemical fertil.	-	170	0		0	0		0	0
Manure(graz) *	-	25	7		0	0		0	0
Manure (graz.)		0			0			0	
Deposition		35			35			35	
Legumes		10			0			0	
TOTAAL		486	74		237	30		35	0

* Gross amount of N, so incl. NH3 losses during application/grazing
The amount of nitrogen is not only the active part, but total

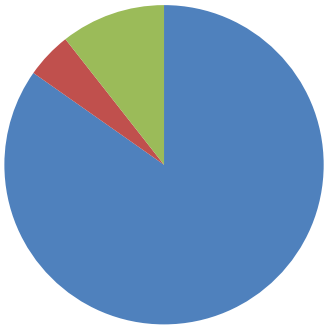
Nitrogen cycle 2021 (kg N/ha)

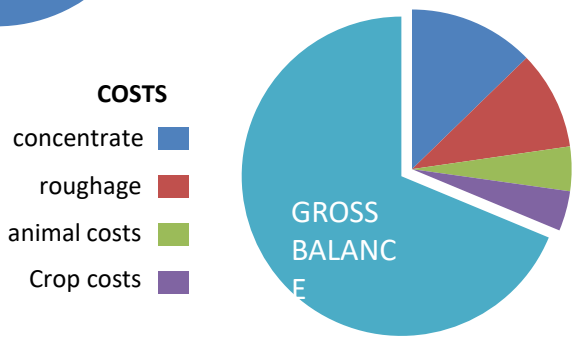


Phosphate cycle 2021 (kg P_2O_5/ha)



Farm economics (2020)

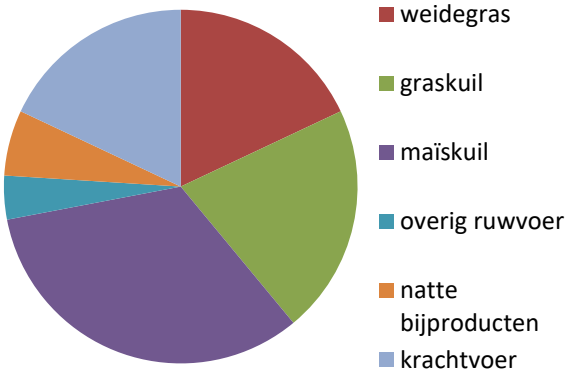




	€/100 kg milk
YIELDS	
milk	38,70
animal	2,6
other	4,3
	45,6
COSTS	
concentrate	6.5
roughage	2,7
other fodders	1,0
breeding	0,8
animal health	1,0
other animal costs	0,2
fertilization	0,7
other crop costs	0,8
Cost for manure disposal	0,5
Other. variable costs	0,7
Total costs	14,7
GROSS BALANCE	**30,9**

Animal Nutrition

Ration characteristics complete herd	
VEM (energy)-content ration (g/kg dm)	961
RE-content total ration (g/kg dm)	146
P content ration (g/kg ds)	3.3
kg concentrate / 100 kg milk (incl. young)	24
Nitrogen efficiency complete herd (%)	28,9
Phosphate efficiency complete herd (%)	38,4
kg FPCM / kg dm feed intake	1,24
Ration composition (%)	
fresh grass	18
grass silage	21
maize silage	33
other roughage	4
wet by products	6
concentrate	18



Improvement projects

ECONOMIY
- *Higher yield per ha*
- *<u>OPTIMAL</u> production dairy cows*

LABOUR
- *Cows that avoid requiring extra care*
- *Retain reliable casual employees*

ENVIRONMENT
- *Reducing Methane emissions*
- *Field-specific fertilization according to need*
- *Retain drainage and yard water for longer before it enters a water-carrying ditch.*

Steps

Period	Action	Improvement
2018	Optimizing maize/grassland fertilization at plot level	Higher (protein) yield
2022	Farm-specific fertilization	fertilizer phosphate and nitrogen
2023	Adapting old dairy barn due to ammonia emission	Use less ammonia emissions