

ANCA: the Dutch way

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The Dutch dairy sector

- 65% of agriculture area is used for dairy farming
- Mainly specialised dairy farms
- Land price: 50,000-70,000 €/ha
- 16,500 dairy farms
- Tradition of family farms
- AA per farm: 50 ha;
maize 0 – 20 % of farm area
- Intensive: 14,000 kg milk/ha; 850,000 kg/farm



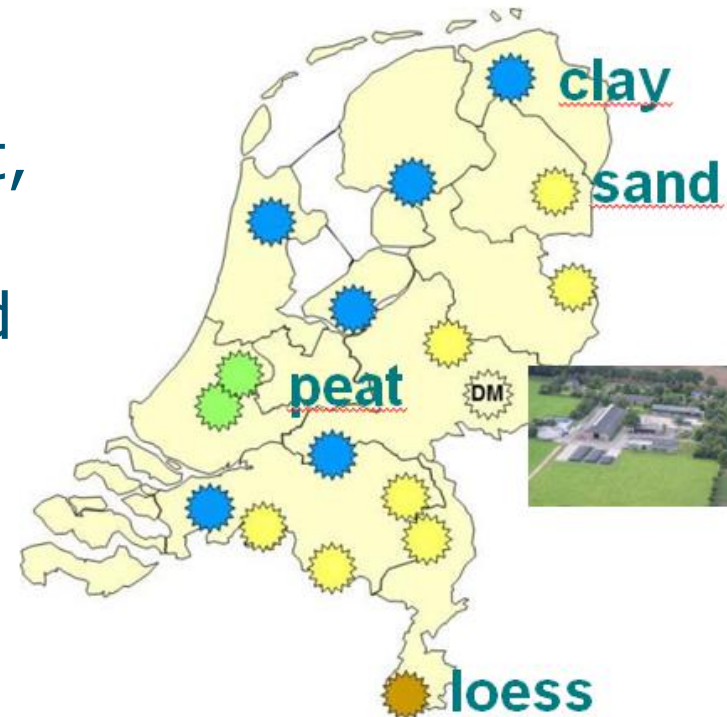
ANCA: Annual, Nutrient, Cycling, Assessment

■ The cradle of ANCA:

- Experimental farm De Marke
- Cows & Opportunities

■ Stimulating conditions

- Cooperation of government, dairy sector and science
- Respect for agricultural and ecological interests



Project 'De Marke'

- Development of a dairy farming system for sandy soils (40 % of Dutch Agriculture area):
 - acceptable from an environmental point of view (ecologically sustainable)
 - with an acceptable income (economically sustainable)
- 1992 - ?



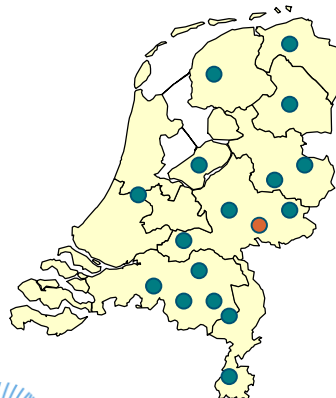
Experimental farm -> Commercial farms

De Marke

16 pilot farms

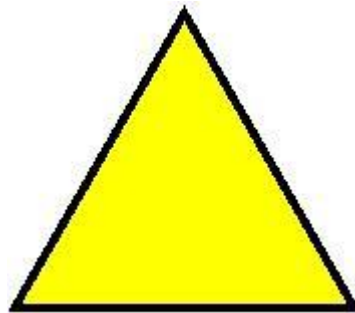
1992

1999



Cooperation Cows & Opportunities: golden triangle

- Research: Wageningen UR
- Government: ministries agriculture, environment
- Dairy sector: farmers unions, dairy industry



Financed by the government and the dairy sector
(each 50%)

Tasks Cows & Opportunities

- To demonstrate best practices
- To develop innovations and implementation on farm scale
- To explore opportunities for improvement of environmental legislation



Experimental farm -> Commercial farms -> Farm Specific Excretion (BEX)

De Marke

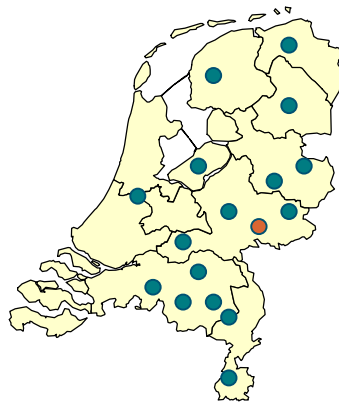
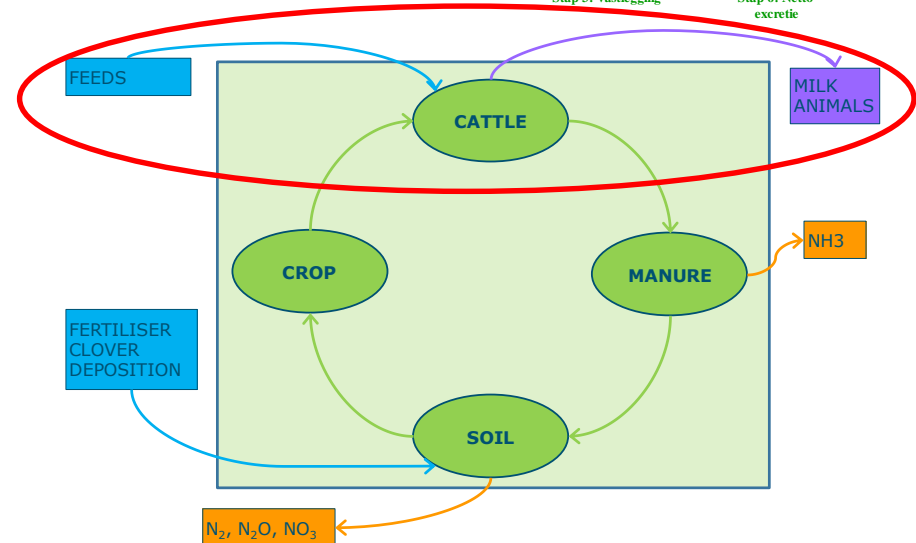
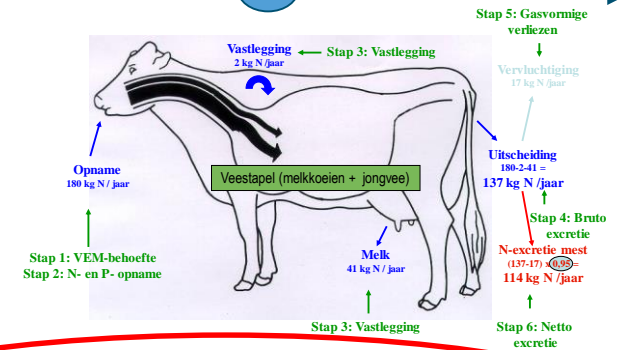
16 pilot farms

BEX

1992

1999

2006



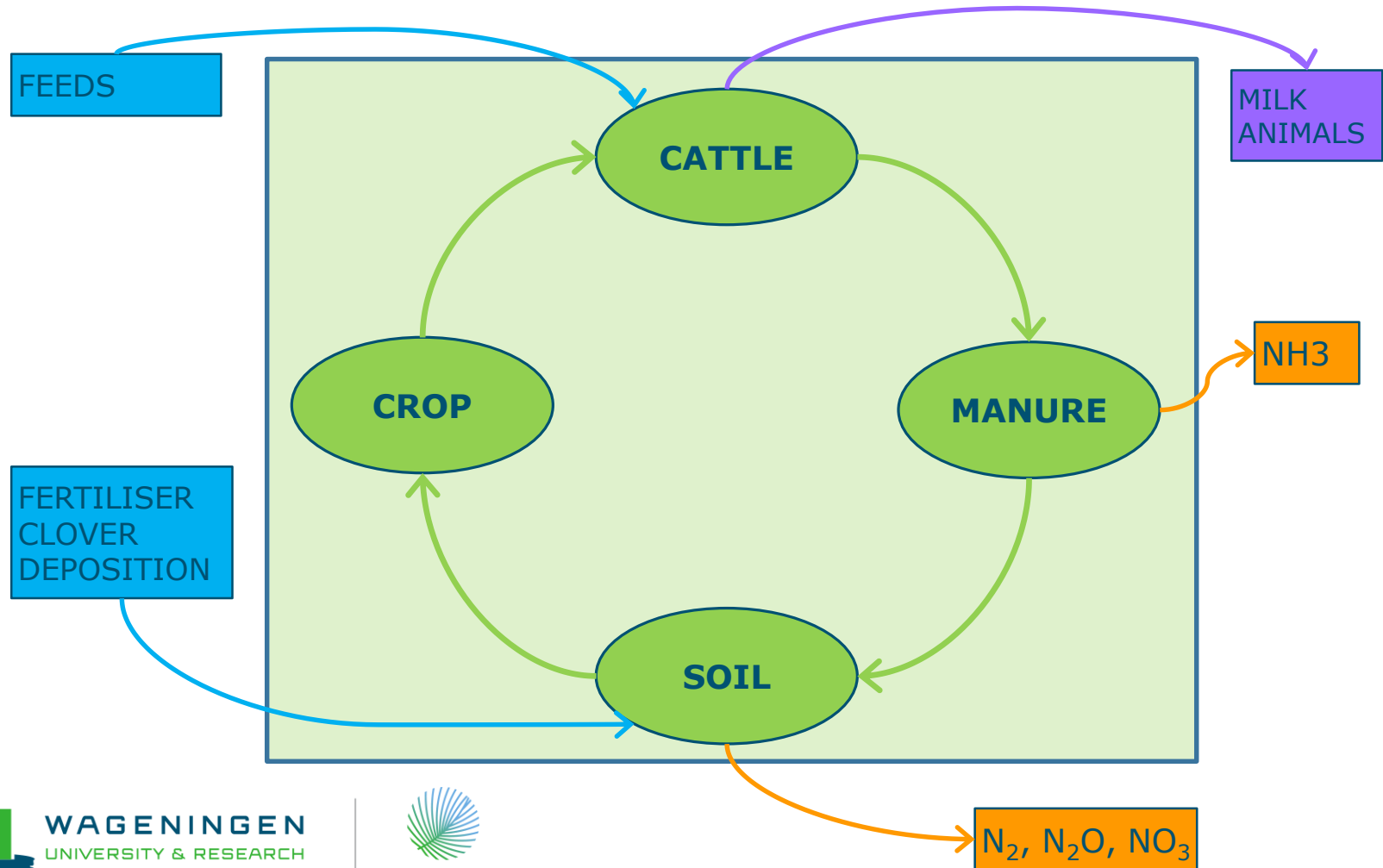
Excretion standards versus a farm specific approach

- ✿ Dutch excretion regulations based on standards
- ✿ Deviation from standards observed
 - Due to decrease in N and P input
- ✿ In agreement with the Dutch government:
 - Decrease environmental losses from animal husbandry
 - Stimulate farmers to cause low excretion rates
 - Reward farmers who achieve low excretion rates



Challenge for Dairy farming:

Optimizing the nutrient cycles:
less losses = less pollution,
less inputs = less costs



First steps of ANCA: 9 March 2011

■ A meeting with....

- Wageningen UR
- Milk processors
- Ministry of Agriculture and Ministry of Environment
- Cooperation CRV breeding values
- Farmers union
- Dairy industry
- Advisory companies



Agreement (1 July 2013 – onwards): obligation to use ANCA



nederlandse zuivel organisatie

Aldus overeengekomen:

Datum: 1 juli 2013

NZO

C.C. 't Hart



LTO Nederland

C. Romijn



Nevedi

H. Flipsen



VLB

F. Tsang

Milk processors

Farmers union

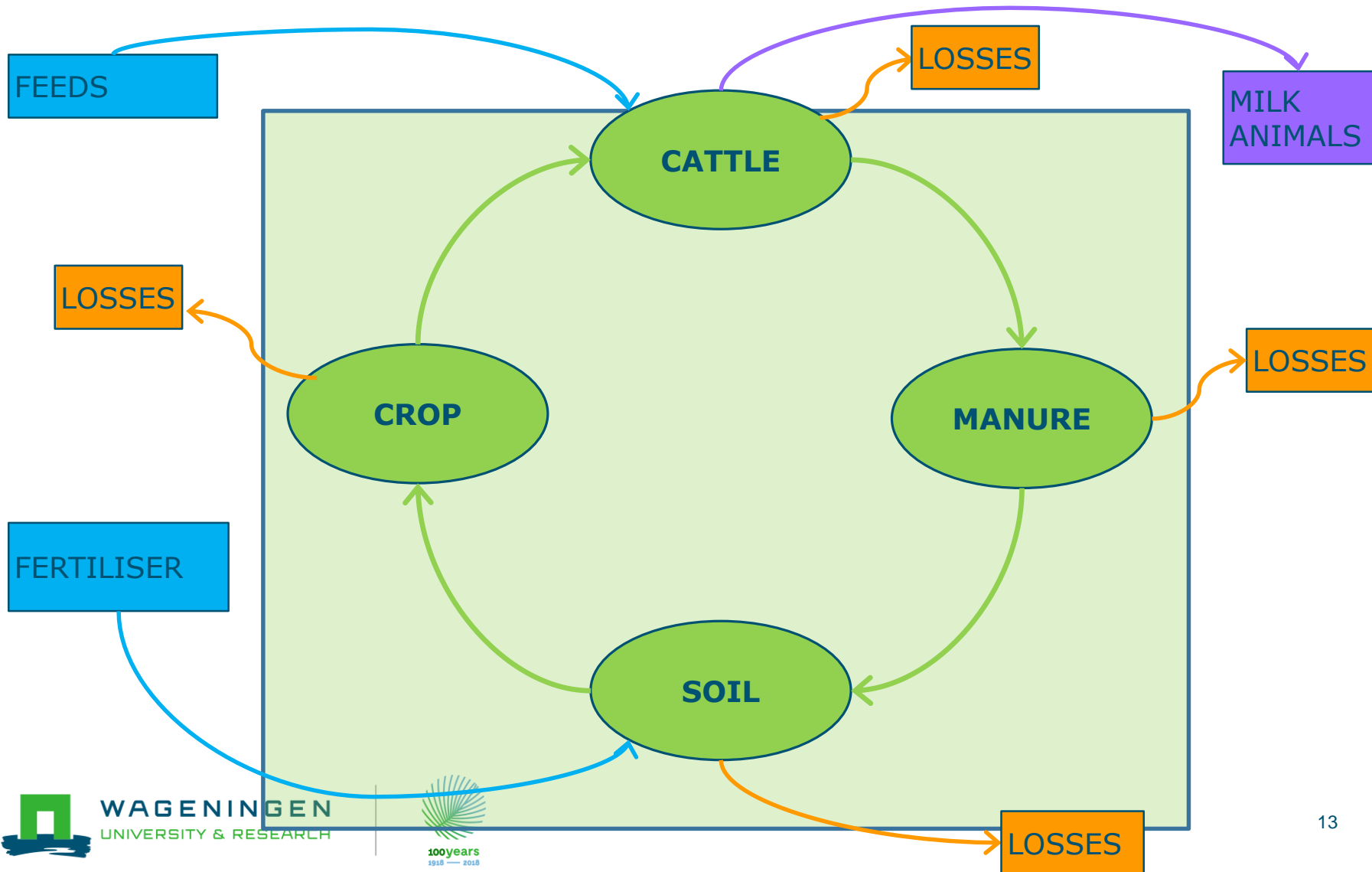
Feed suppliers

Accountants

From 2016 onwards: ANCA mandatory for all dairy farms

Penalty: milk will be refused by milk processors

ANCA quantifies the cycles of N, P and C



Why ANCA?

- To demonstrate, with values for indicators, that milk is produced in a sustainable way ('Licence to Produce')
- To stimulate (or force) farmers to use resources most efficient
- To change legislation from *generic* to *farm specific*, particularly:
 - Excretion norms
 - Fertilisation norms



Performances to be presented (in comparison with normative values)

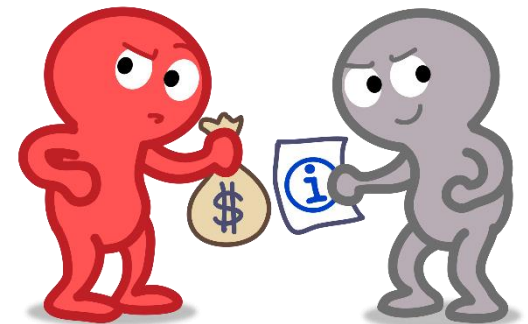


- Feed consumption, Feed efficiency
- Excretion of N and P
- Ammonia losses
- Crop yields
- Fertiliser applications and efficiency of turn over into crops
- Surpluses of N and P on farm and soil balance
- Nitrate content groundwater
- Input of effective organic matter
- Green House Gas emissions



In summary, what does it tell?

- The efficiency of the utilisation of feed, fertilisers, land and cattle.
- The levels of losses from farm to environment
- Comparisons with values of colleagues and normative values
- What should be done better

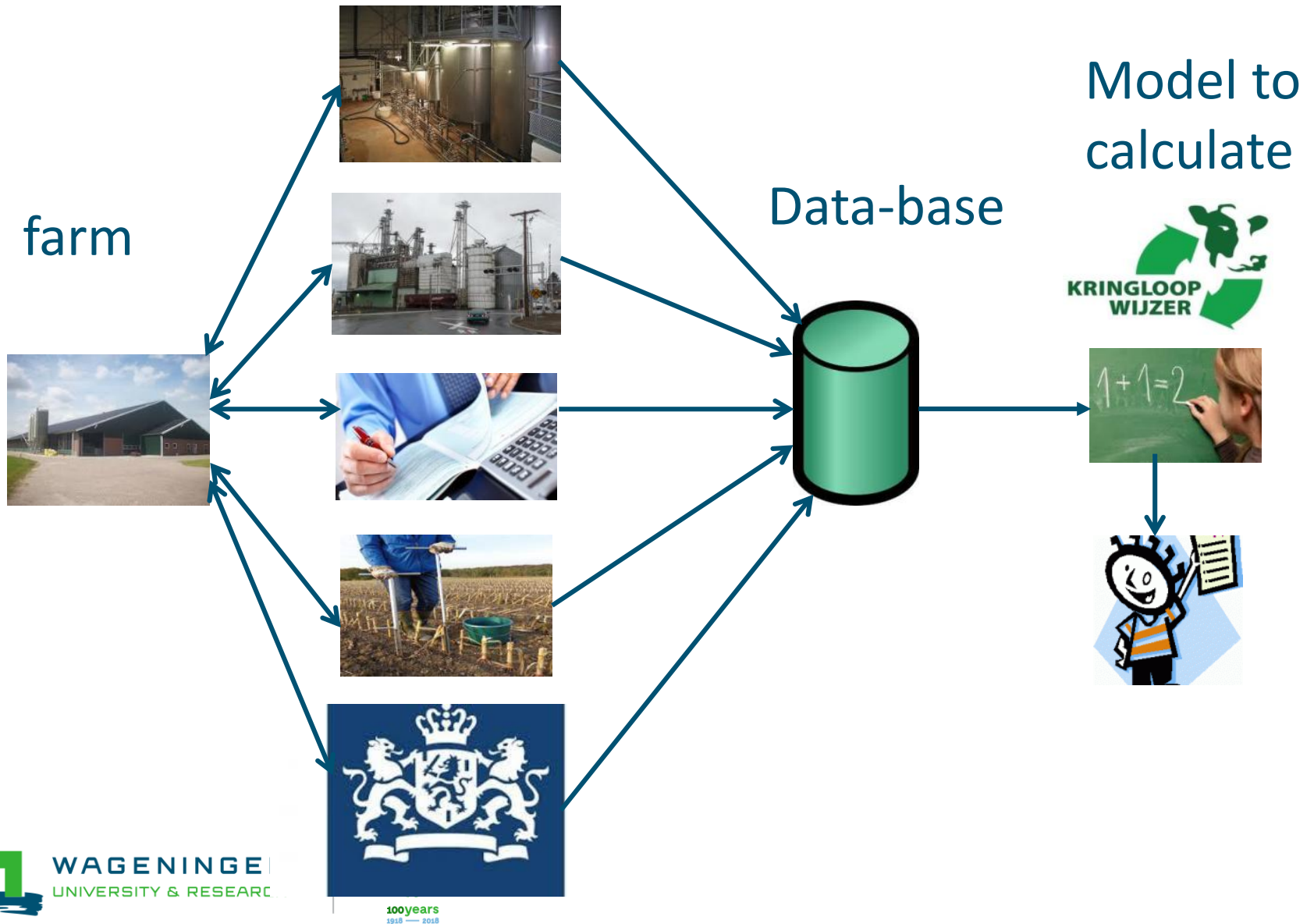


Data to be supplied; *by independent professionals (as much as possible!)*

- Year
- Animals (number/breed)
- Milk production
- Grazing hours/yr
- Farmland, land use (ha)
- P status soil
- Feed stocks: harvest and import
- Contents of feed stocks (Energy/N/P/Ash)
- Feed stocks storage changes
- Export of farm feeds
- Soil type
- Cropping plan, Legumes
- Farm organic/artificial manure (input/output)
- Type of housing



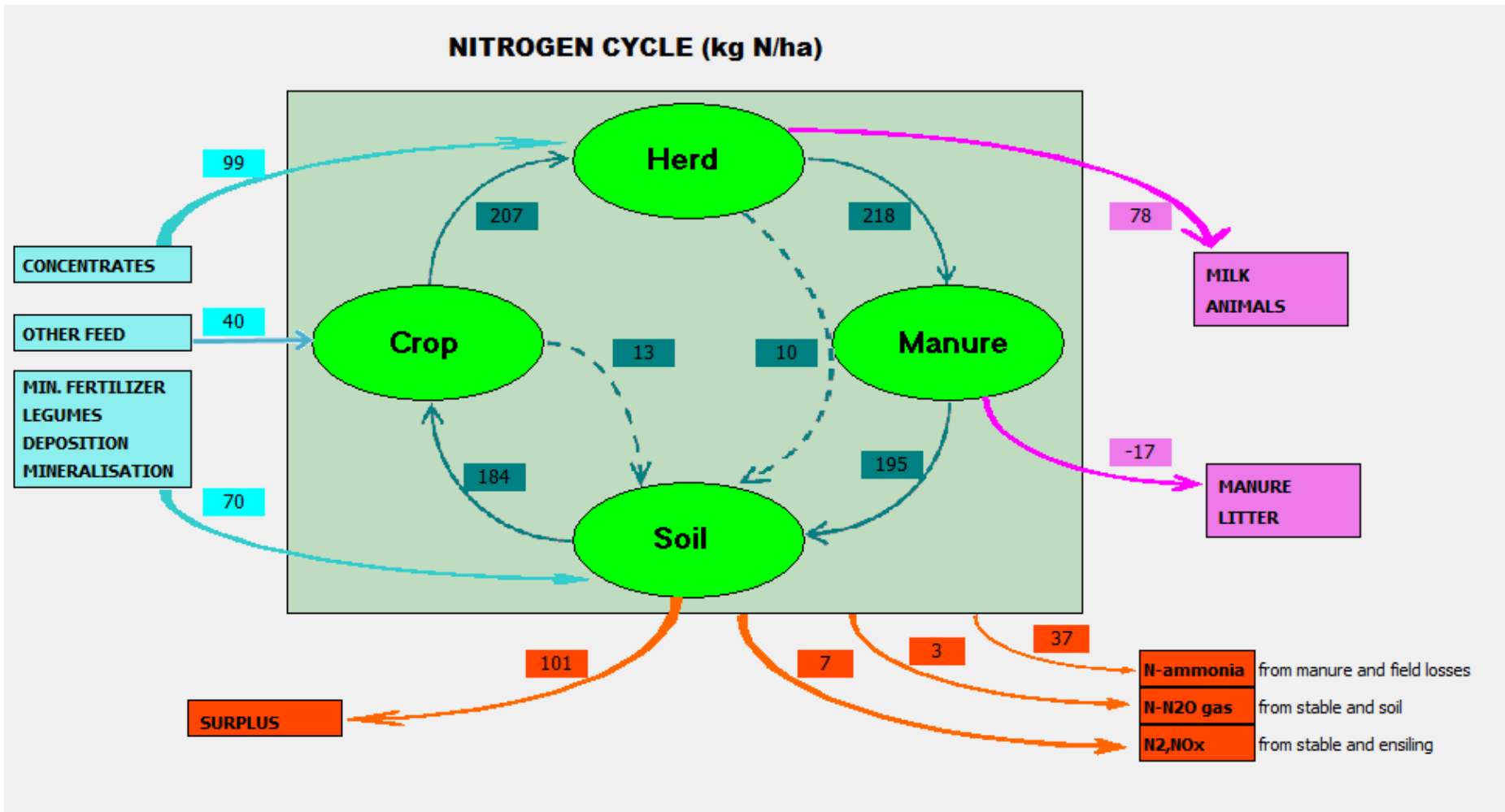
Feed supplier, milk processor,
accountant, government, etc.



Output of ANCA (1)

		<i>Clarification on the scoring</i>	2016	2015	2014	BIN
Farm specific:	Advantage farm specific excretion: nitrogen		+12%	+13%	+6%	+3%
- excretion	Advantage farm specific excretion: phosphate		+12%	+4%	+26%	+11%
- appl. standards	Advantage farm specific appl. standard: phosphate		-10%	-17%	-26%	-5%
	Excretion per ton milk: nitrogen (kg N)	V	16.4	15.7	17.4	21.0
	Excretion per ton milk: phosphate (kg P2O5)	V	5.8	6.1	5.1	7.0
	Milk production per excretion: phosphate (kg milk)	V	173	163	197	143
Whole farm surplus	Surplus per ha: nitrogen (kg N)	V	147	93	140	188
	Surplus per ha: phosphate (kg P2O5)	V	5	3	-3	8
Herd efficiency	Nitrogen use efficiency (%)	V	26	27	24	22
	Phosphate use efficiency (%)		33	31	35	30
Yield grassland	Net yield per ha: dry matter (kg dm)		8226	8774	9666	8855
	Net yield per per ha: KVEM (kvem)		7717	8188	9249	8286
	Net yield per ha: nitrogen (kg N)	X	183	235	258	247
	Net yield per ha: phosphate (kg P2O5)		76	83	83	76
Yield maize land	Net yield per ha: dry matter (kg dm)	X	13231	16693	13665	14985
	Net yield per ha: KVEM (kvem)		13840	16724	13925	14636
	Net yield per ha: nitrogen (kg N)	X	118	172	141	173
	Net yield per ha: phosphate (kg P2O5)		61	70	59	64
Soil surplus	Nitrogen surplus per ha (kg N)	V	101	41	88	133
	Phosphate surplus per ha (kg P2O5)	V	5	3	-3	8
	Input of effective organic matter per ha (kg EOM)		3894	3976	4448	4318
Soil efficiency	Nitrogen use efficiency (%)		64	85	72	65
	Phosphate use efficiency (%)		94	96	104	90
Ammonia	Whole farm emission: total (kg NH3)	V	2171	2300	2682	2638
	Emission per ton milk: total (kg NH3)	V	3.71	3.40	3.96	4.98
	Emission per LSU: stable+manure storage (kg NH3)	X	10.7	9.8	10.4	9.3
	Emission per LSU: other losses (kg NH3)	V	13.9	13.9	15.4	17.9
Greenhouse gasses	Emission per ton milk: on-farm methane (kg CH4)		27.9	23.6	26.6	30.5
	Emission per ton milk: on-farm N2O (kg N2O)	V	0.52	0.40	0.53	0.92
	Emission per ton milk: on-farm energy (kg CO2)		123	99	125	114
	Emission per ton milk: total on-farm (kg CO2-eq)	V	1042	866	1008	1209
	Emission per ton milk: total off-farm (kg CO2-eq)	V	234	250	420	373
	Emission per ton milk: total farm (kg CO2-eq)	V	1276	1117	1428	1582

Output of ANCA (2)



ANCA is a joint effort of the dairy sector and.....



Owner Central Database



nederlandse zuivel organisatie

Partners



Ministerie van Economische Zaken

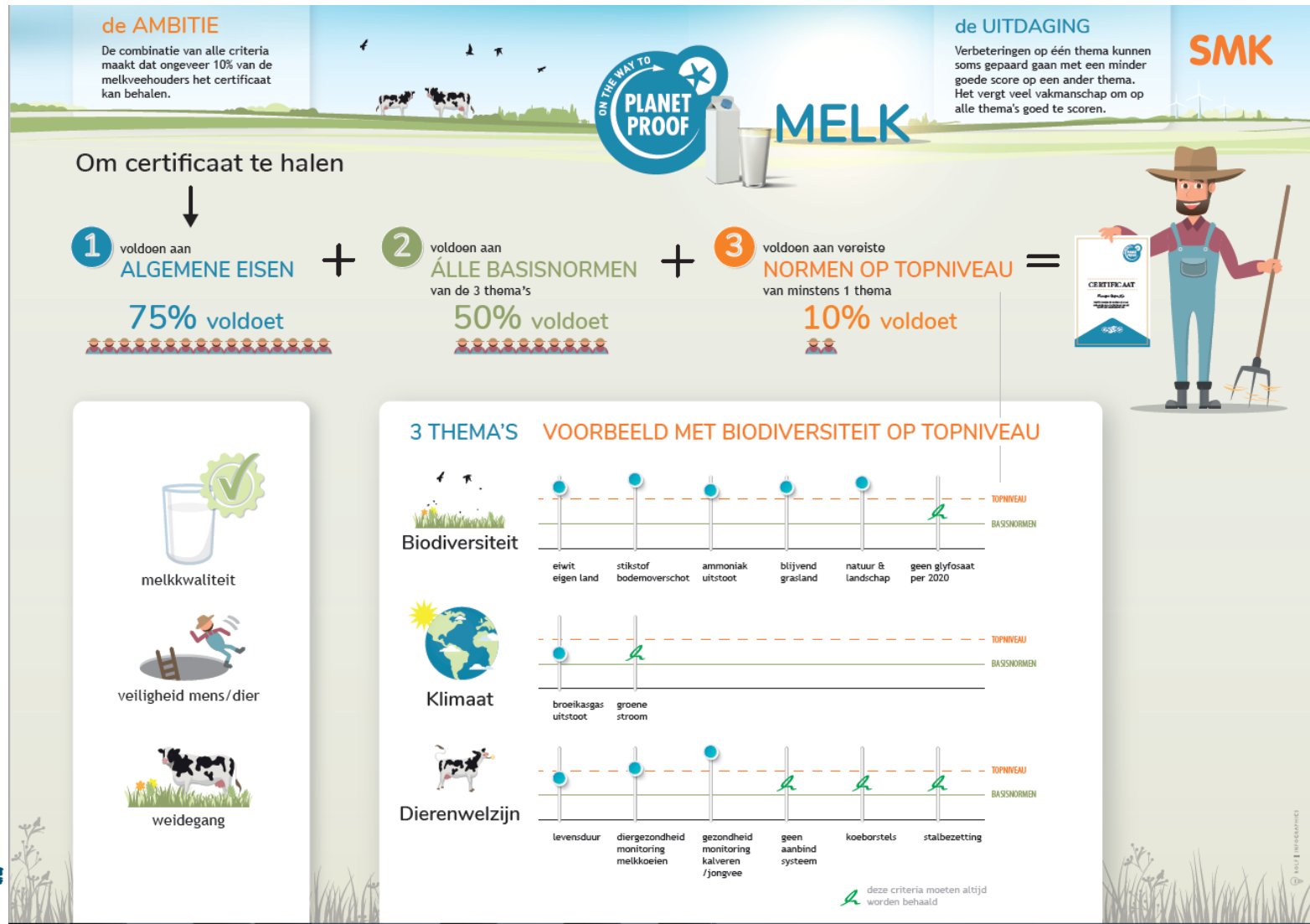


100years
1918 — 2018



On the way to planetProof...

■ Independent environmental quality label for agri/food



Dashboard Environment and Climate



- Initiated by ZuivelNL/DairyNL, organisation of the Dutch dairy supply chain
- Indicators (with targets):
 - N surplus soil surface balance (kg N/ha)
 - Ammonia losses (kg/ha and kg/LSU)
 - Home grown protein production (protein production / protein use; %)
 - Permanent grassland (%)
 - Carbon food print (gr CO₂-eq / kg FPCM)

Benefits for dairy farmers... (members of Friesland Campina)



- 👍 Grazing (>120 days, 6 hr/day): € +1.5 cent/l
- 👍 PlanetProof Milk (ANCA results): 1st year € +1 cent/l;
2nd year € +2 cent/l
(regional)



Thank you for your attention!

