Updating and renovating the INRA-AFZ multispecies feed tables

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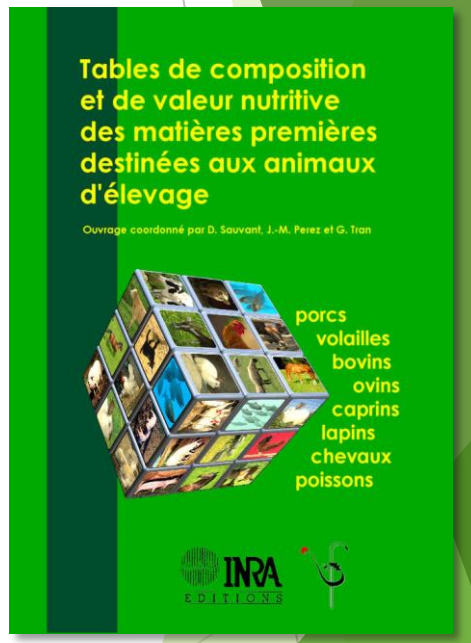
The INRA-AFZ multispecies feed tables

In the late 1990s, INRA and AFZ created feed tables with the following features:

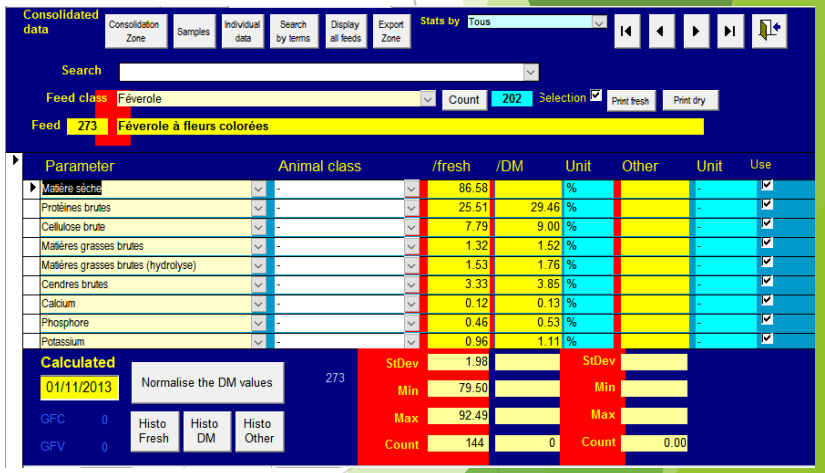
- Feed materials (ingredients) only
  - Target: compound feed industry
- Main livestock species (rather than species-specific tables)
- State-of-the-art nutritional concepts
  - Energy and protein values for ruminants (UF, PDI, AADI)
  - Starch degradability, mineral balance for ruminants
  - Amino acid digestibilities in pigs and poultry



The INRA-AFZ multispecies feed tables

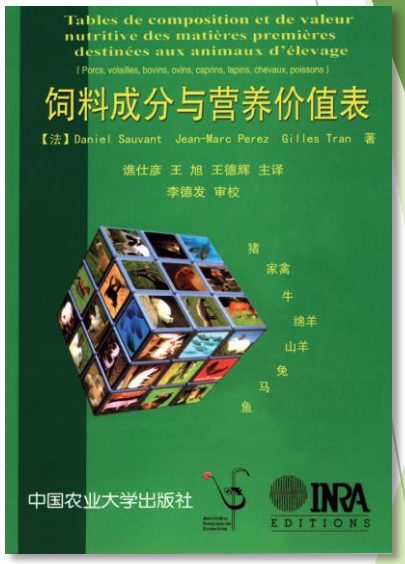
The INRA-AFZ feed tables of 2002 were based on:

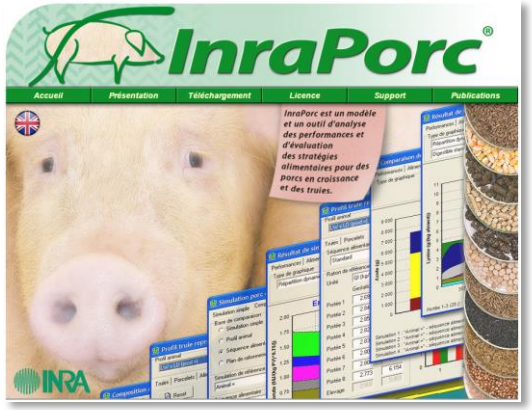
- Data collected from feed companies and R&D organisations by AFZ since 1989
- Scientific input from INRA researchers
  - Nutritional concepts
  - Equations for predicting the nutritional values



The INRA-AFZ multispecies feed tables

- The INRA-AFZ feed tables were successful
  - 2 French editions (2002 and 2004)
  - Translation in English, Spanish and Chinese
  - 14.000 copies sold
- The INRA-AFZ data have been used in many technical publications, tables and software





Why new tables?

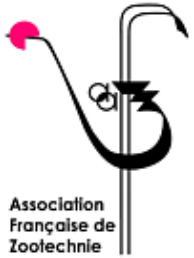
- A repeated request from feed professionals
- Technical and scientific advances
  - New nutritional concepts (Systali sytem for ruminants)
  - New feeds (biofuel by-products…)
  - New types of data (environmental footprint)
- Massive increase in available data
  - AFZ 's French Feed database contains twice more data than in 2002
  - More data from scientific publications
- Globalisation of the demand for feed information
  - Need for harmonization of European feed units
  - Demand from emerging countries and for the overseas/outermost regions of Europe
  - A new partner with experience in tropical countries: cirad LA RECHERCHE AGRONOMIQUE POUR LE DÉVELOPPEMENT

Why new tables?

- The internet has become mandatory for optimal dissemination
  - Large, worldwide audience
  - Adaptable, reactive, flexible, no size constraints
- Success of Feedipedia.org, the on-line feed encyclopedia managed by INRA, CIRAD, AFZ and FAO
  - 1 million unique Feedipedia users in 3 years vs 14.000 copies of the INRA-AFZ tables in 12 years
- Developing Feedipedia was also useful for identifying areas of interest in feed information worldwide

The INRA-CIRAD-AFZ tables

- Project started in 2015
- Developed by researchers and engineers of INRA, CIRAD and AFZ
- With the support of
  - Ajinomoto Eurolysine
  - INRA, CIRAD, AFZ, EAAP



The INRA-CIRAD-AFZ tables

- Chemical composition and nutritive data on ruminants, pigs, poultry, rabbits, horses and fish
- Chemical data calculated from the data of the French Feed Database (> 2.3 million raw data)
  - Updated regressions between proximate analysis components
- Nutritional values for energy and protein calculated from updated equations
  - Those equations will be made available to users

The INRA-CIRAD-AFZ tables

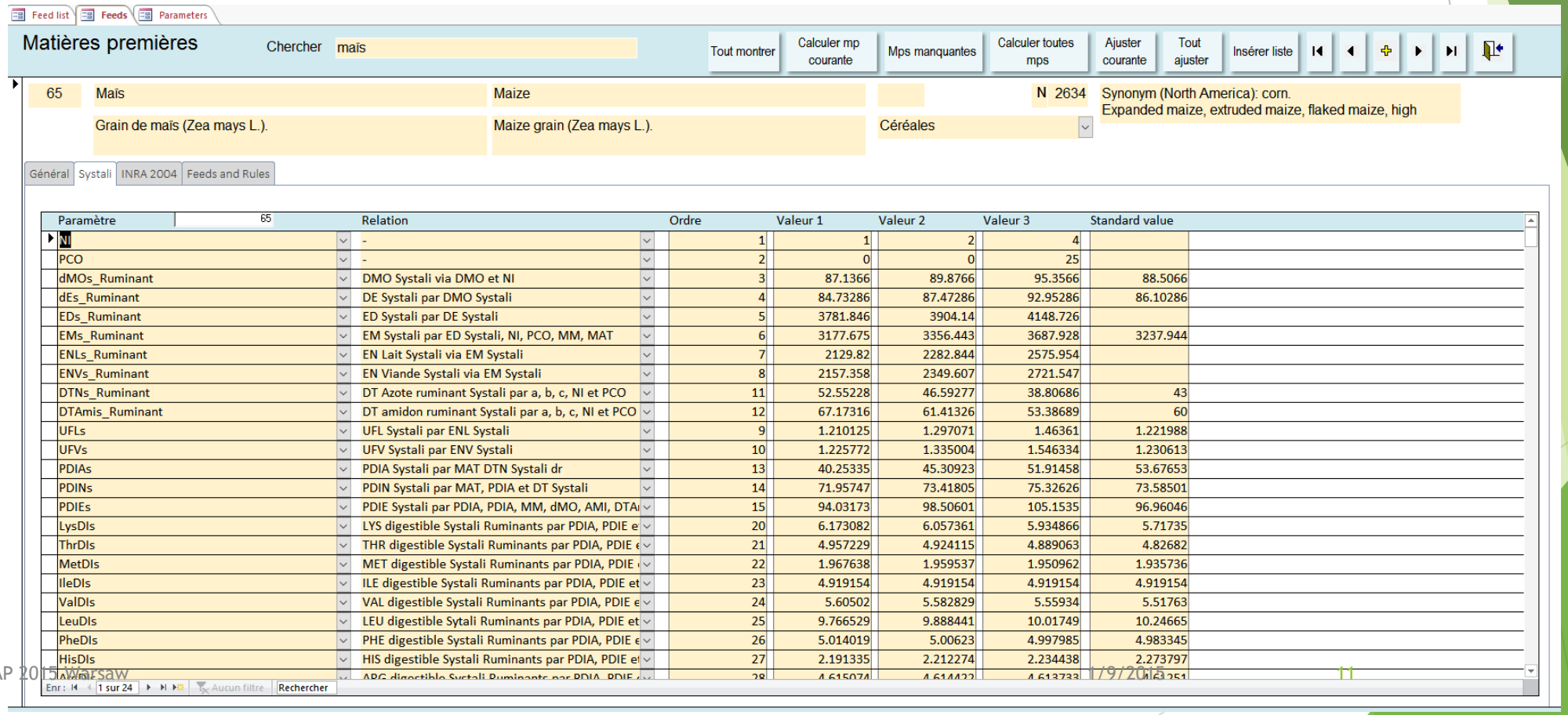
- New products
  - Biofuel by-products
  - Feeds for emerging and overseas/outermost regions, such as fruit by-products, sugarcane byproducts or rice byproducts
- The new INRA feed unit system for ruminants (Systali)
  - UF, PDI and AADI values provided for 3 combinations of feeding levels and proportions of concentrate in the diet (low, medium, high)
- Inclusion of other European feed unit systems
- Under consideration: environmental footprint data
  - Cumulative Energy Demand, Eutrophication, Acidification, Land competition, Climate change

The INRA-CIRAD-AFZ tables

- Website
  - Table values will be available online (including on mobile devices)
  - E-book and print versions are also planned
- Developed in French and English
  - Other languages are possible
- Free access to the tables
  - Certain high value-added features will be available on subscription

Under developement: database

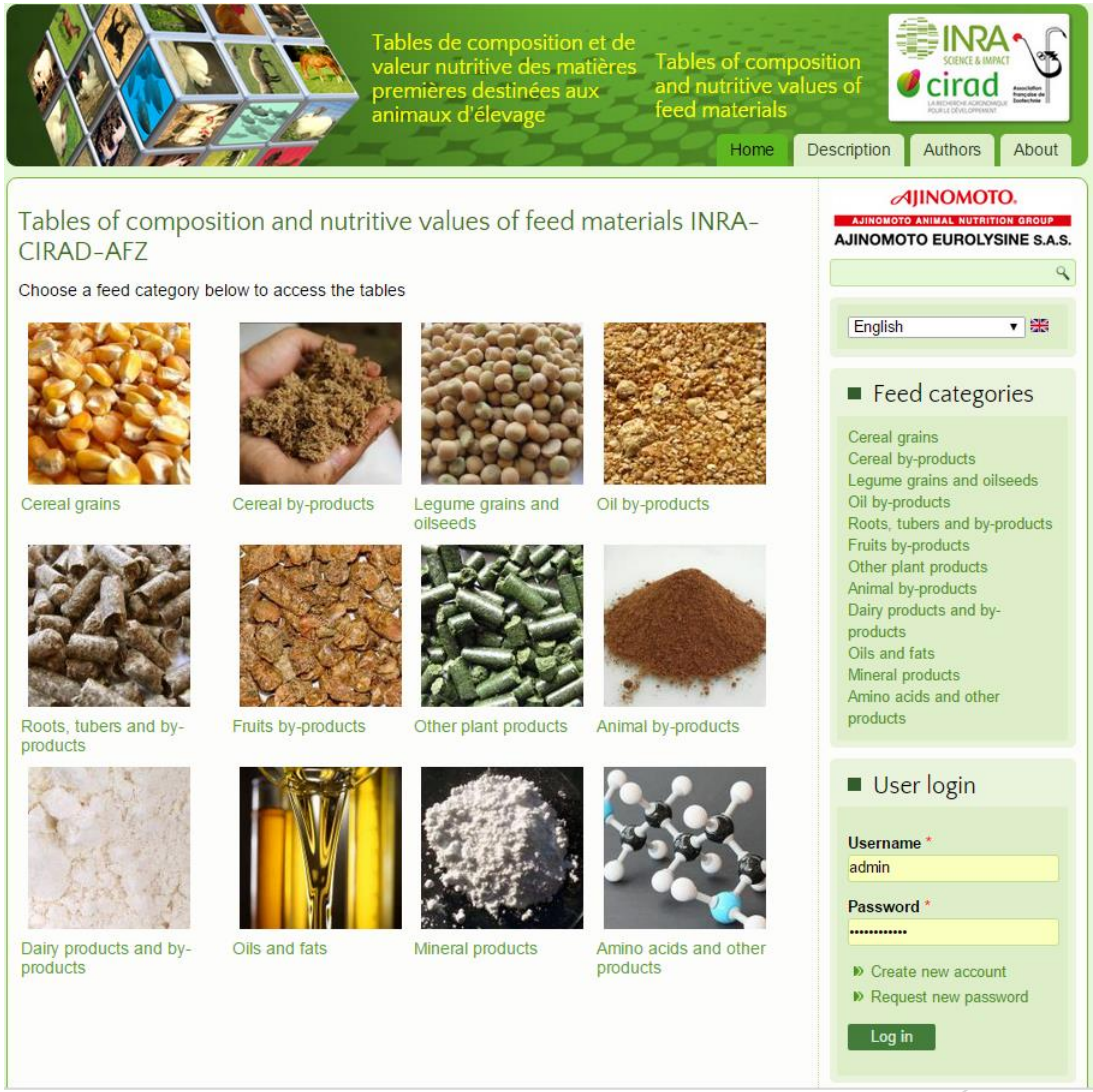
- New data, new parameters, new equations, new feeds



Paramètre	Relation	Ordre	Valeur 1	Valeur 2	Valeur 3	Standard value
NI	-	1	1	2	4	
PCO	-	2	0	0	25	
dMOs_Ruminant	DMO Systali via DMO et NI	3	87.1366	89.8766	95.3566	88.5066
dEs_Ruminant	DE Systali par DMO Systali	4	84.73286	87.47286	92.95286	86.10286
EDs_Ruminant	ED Systali par DE Systali	5	3781.846	3904.14	4148.726	
EMs_Ruminant	EM Systali par ED Systali, NI, PCO, MM, MAT	6	3177.675	3356.443	3687.928	3237.944
ENLs_Ruminant	EN Lait Systali via EM Systali	7	2129.82	2282.844	2575.954	
ENVs_Ruminant	EN Viande Systali via EM Systali	8	2157.358	2349.607	2721.547	
DTNs_Ruminant	DT Azote ruminant Systali par a, b, c, NI et PCO	11	52.55228	46.59277	38.80686	43
DTAmis_Ruminant	DT amidon ruminant Systali par a, b, c, NI et PCO	12	67.17316	61.41326	53.38689	60
UFLs	UFL Systali par ENL Systali	9	1.210125	1.297071	1.46361	1.221988
UFVs	UFV Systali par ENV Systali	10	1.225772	1.335004	1.546334	1.230613
PDIAs	PDIA Systali par MAT DTN Systali dr	13	40.25335	45.30923	51.91458	53.67653
PDINs	PDIN Systali par MAT, PDIA et DT Systali	14	71.95747	73.41805	75.32626	73.58501
PDIEs	PDIE Systali par PDIA, PDIA, MM, dMO, AMI, DTA	15	94.03173	98.50601	105.1535	96.96046
LysDIs	LYS digestible Systali Ruminants par PDIA, PDIE e	20	6.173082	6.057361	5.934866	5.71735
ThrDIs	THR digestible Systali Ruminants par PDIA, PDIE e	21	4.957229	4.924115	4.889063	4.82682
MetDIs	MET digestible Systali Ruminants par PDIA, PDIE	22	1.967638	1.959537	1.950962	1.935736
IleDIs	ILE digestible Systali Ruminants par PDIA, PDIE et	23	4.919154	4.919154	4.919154	4.919154
ValDIs	VAL digestible Systali Ruminants par PDIA, PDIE e	24	5.60502	5.582829	5.55934	5.51763
LeuDIs	LEU digestible Sytali Ruminants par PDIA, PDIE et	25	9.766529	9.888441	10.01749	10.24665
PheDIs	PHE digestible Systali Ruminants par PDIA, PDIE e	26	5.014019	5.00623	4.997985	4.983345
HisDIs	HIS digestible Systali Ruminants par PDIA, PDIE et	27	2.191335	2.212274	2.234438	2.273797
ArgDIs	ARG digestible Systali Ruminants par PDIA, PDIE	28	4.615074	4.614422	4.613733	4.613251

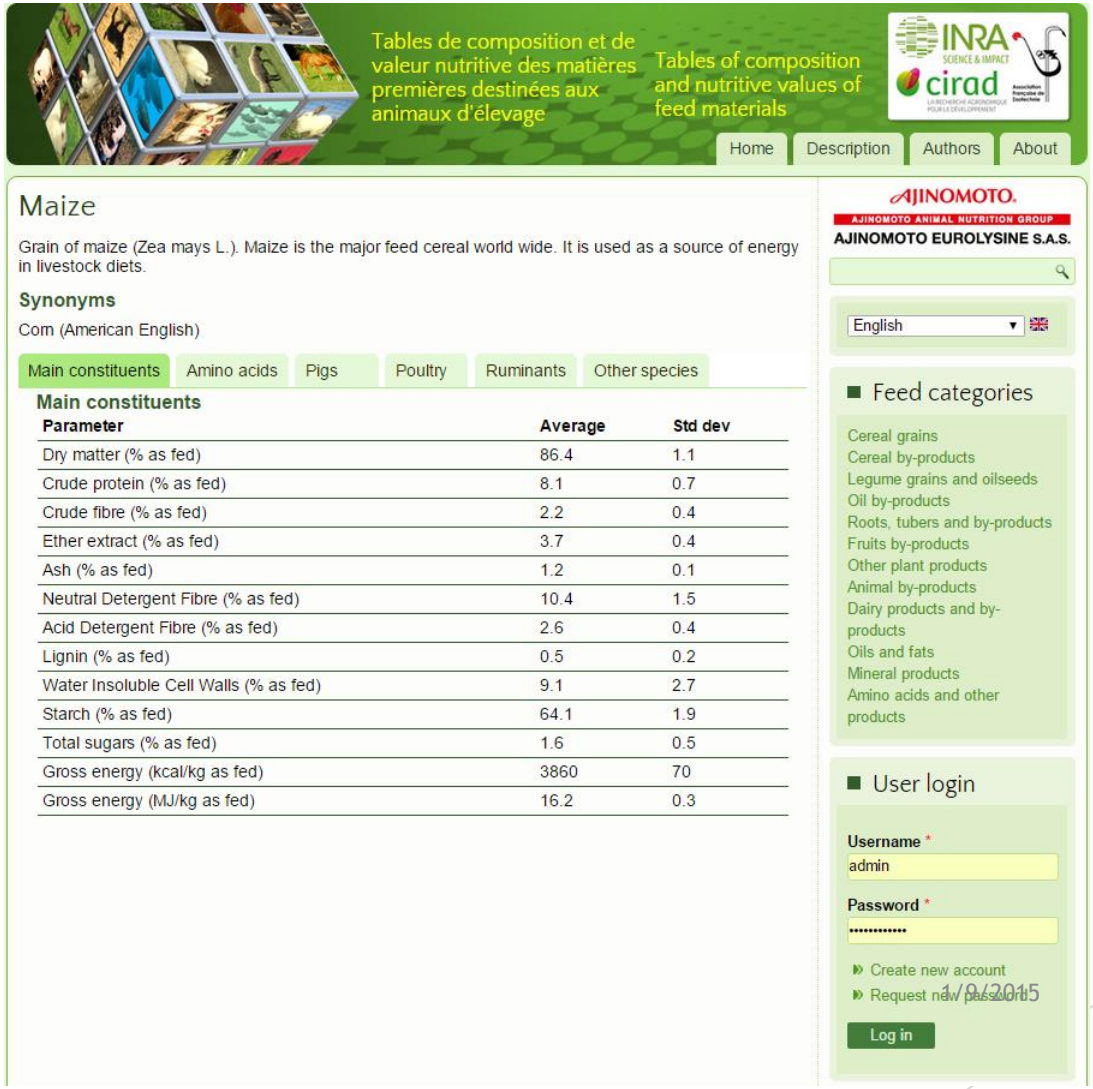
Under development: website

- Front page



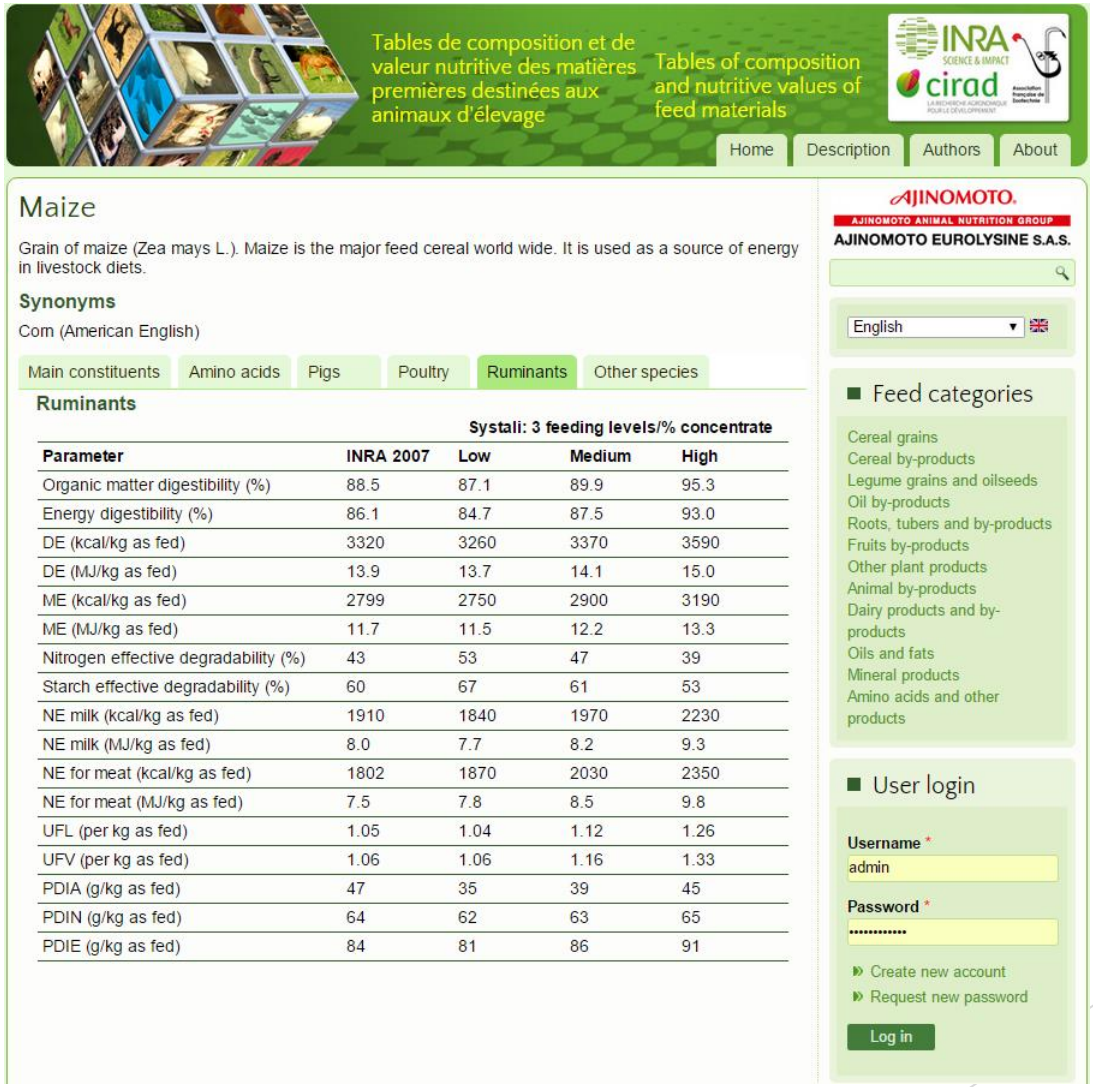
Under development: website

- Tables:
  main constituents



Under development: website

- Tables:
  ruminants



Roadmap

- Functional website by the end of 2015/early 2016
- Edited by Sauvant, Tran, Perez, and Bastianelli
  - Tables for the main feed materials (about 150)
  - Will include Systali values
- Progressive rollout in 2016-2017
  - Other feeds
  - Values for other feed units systems
  - Interactive and dynamic features
  - Subscription area
  - E-book and print versions

Thank you for your attention!