

STrategic & Operational Real-world Model: STORM Datasets

STORM Datasets are a new, data-rich research product that deliver animal health and animal agriculture 10-year market forecasts for 32 country and 8 regional markets.

STORM Datasets are extracted from STORM, a proprietary modelling tool, that facilitates animal health and animal agriculture demand forecasting, market simulation and scenario analysis.

- STORM links consumer demand for animal protein to animal agriculture production / trade and demand for animal health products
- STORM identifies where, what and how many animals will be raised to satisfy animal protein consumption demand in response to changing consumer preferences, political, regulatory and environmental factors
- STORM was developed and is updated by a team of Analysts specialising in agricultural economics, economics and modelling

STORM Datasets Content & Coverage

each country / region market STORM Dataset delivers a rich set of data (ca. 4,000 data points) including 10-year forecasts:

Content

- › **Macro-economic Environment**
 - GDP, real-GDP growth, importance of agriculture to GDP & agricultural workforce
 - inflation & currency
 - human population
- › **Animal Protein Demand**
 - animal protein per capita consumption
 - other usage of animal protein
 - self-sufficiency by commodity
- › **Livestock & Poultry Situation**
 - production, trade and prices
 - Beef, dairy, sheep & goat meat, pig meat, poultry meat, eggs, fish
 - animal feed consumption & prices
 - commodity Balance Sheets
 - animal population
 - inventory
 - breeding animals
 - medicalized population
 - total slaughter
- › **Animal Health Market**
 - by Species
 - Cattle
 - Sheep
 - Pigs
 - Poultry
 - Fish
 - by Product Group
 - Medicinal Feed Additives
 - Biologicals
 - Anti-infectives
 - Parasiticides
 - Other Pharmaceuticals

Coverage

- › **North America**
 - USA
 - Canada
- › **Latin America**
 - Argentina
 - Brazil
 - Colombia
 - Mexico
 - Uruguay
 - Venezuela
 - Rest of Latin America
- › **West Europe**
 - Austria
 - Belgium
 - Denmark
 - France
 - Germany
 - Ireland
 - Italy
 - Netherlands
 - Portugal
 - Spain
 - Sweden
 - Switzerland
 - UK
 - Rest of West Europe
- › **East Europe**
 - Hungary
 - Poland
 - Russia
 - Other EU-N12
 - Rest of East Europe & FSU
 - Central Asia
- › **Far East**
 - Australia
 - China
 - Japan
 - New Zealand
 - South Korea
 - Rest of Far East
- › **Rest of World**
 - India
 - South Africa
 - Turkey
 - Africa & Middle-East
 - Rest of Rest of World

Methodology

STORM is a sophisticated global partial-equilibrium model that facilitates animal health and animal agriculture demand forecasting, market simulation and scenario analysis. STORM was developed and is updated by a team of Agricultural Economists and Economists.

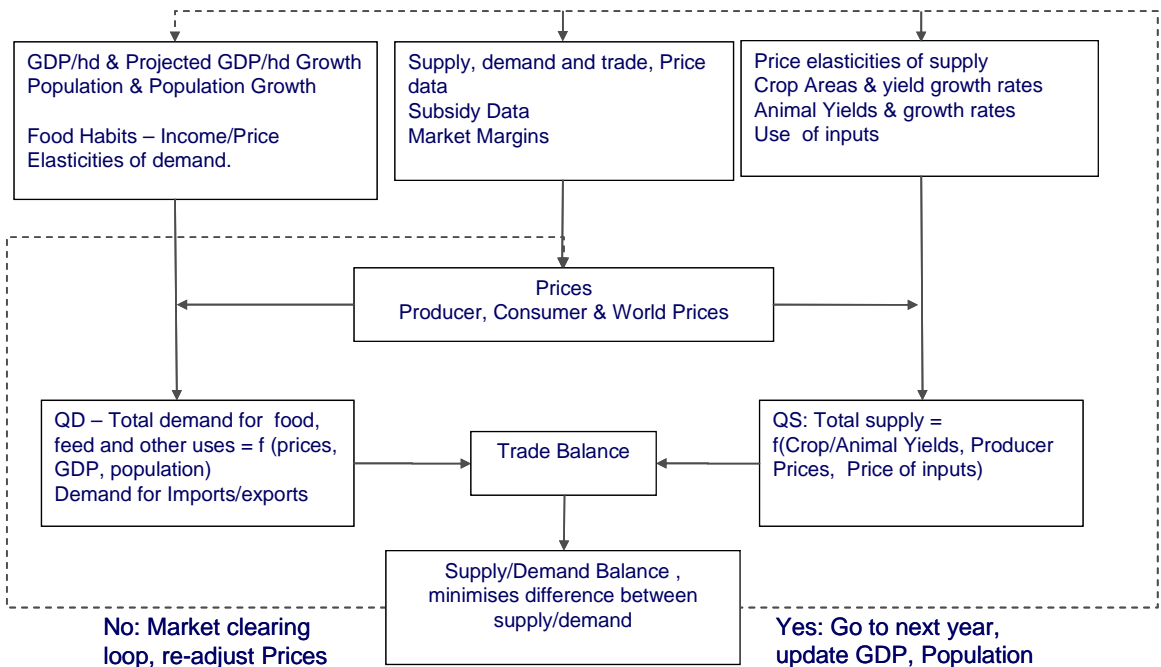
The globalisation of the animal protein industry, driven by rapid trade liberalisation, now demands a global approach to market simulation and demand forecasting by the animal health industry.

To understand the future market environment in any one country market now requires a detailed understanding of global supply and demand within the animal protein industry.

Robust and sophisticated market simulation and demand planning tools are now needed to support strategic and operational planning in the animal health industry.

STORM Datasets are the first and only tools that offers this capability.

Fig.1: STORM schematic diagram



Country	Year	Commodity	Production (1000 t)	Unit	Name
Argentina	1960	Barley	773.00	000 MT	Production
Argentina	1960	Bovine meat	1,893.00	000 MT	Production
Argentina	1960	Maize	4,850.00	000 MT	Production
Argentina	1960	Other cereals	2,861.00	000 MT	Production
Argentina	1960	Rice	97.00	000 MT	Production
Argentina	1960	Wheat	3,960.00	000 MT	Production
Argentina	1961	Barley	800.00	000 MT	Production
Argentina	1961	Bovine meat	2,145.00	000 MT	Production
Argentina	1961	Maize	5,220.00	000 MT	Production
Argentina	1961	Other cereals	2,819.00	000 MT	Production
Argentina	1961	Rice	116.00	000 MT	Production
Argentina	1961	Wheat	5,725.00	000 MT	Production
Argentina	1962	Barley	345.00	000 MT	Production
Argentina	1962	Bovine meat	2,379.00	000 MT	Production
Argentina	1962	Maize	4,360.00	000 MT	Production
Argentina	1962	Other cereals	1,757.00	000 MT	Production
Argentina	1962	Rice	116.00	000 MT	Production
Argentina	1962	Wheat	5,700.00	000 MT	Production
Argentina	1963	Barley	1,020.00	000 MT	Production
Argentina	1963	Bovine meat	2,605.00	000 MT	Production
Argentina	1963	Maize	5,390.00	000 MT	Production
Argentina	1963	Other cereals	2,900.00	000 MT	Production
Argentina	1963	Rice	124.00	000 MT	Production
Argentina	1963	Wheat	8,940.00	000 MT	Production
Argentina	1964	Barley	526.00	000 MT	Production
Argentina	1964	Bovine meat	2,019.00	000 MT	Production
Argentina	1964	Maize	5,140.00	000 MT	Production
Argentina	1964	Oilcrops	000.00	000 MT	Production
Argentina	1964	Other cereals	2,427.00	000 MT	Production
Argentina	1964	Poultry meat	66.00	000 MT	Production
Argentina	1964	Rice	174.00	000 MT	Production

STORM has been developed within an extremely powerful mathematical optimization package called AIMMS (Advanced Interactive Multi-dimensional Modeling Software).

Baseline data repository is uploaded from MS Access into the STORM AIMMS model, which uses a powerful CONOPT non linear solver to determine the optimal global market equilibrium for each year.

The AIMMS interface displays the following components:

- Model Explorer:** Shows a tree view of the model structure, including 'Increaseslaughter(v,n)', 'Decreaseprice(v,n)', 'Slaughteredconstraint2006', 'MarketClearing()', 'Globaltradebalance()', 'Consumerpricesconstraint', 'Feedprices(v,n)', and 'Lossconstraint(v,n)'.
- Progress Window:** Shows the solver status: 'READY', 'AIMMS: StormEQUModel.amb', 'Executing: BuildBaseView', 'Line number: 8 (Body)', 'Math Program: MINIMIZE', '# Constraints: 13256', '# Variables: 13288', '# Nonzeros: 75843', 'Model Type: NLP', 'Direction: minimize', 'Solver: CONOPT 3.14A', 'Phase: 4', 'Iterations: 12', 'Max Gradient: 7.02e-008 (NSR: 00)', 'Objective: 4.174766224e-9', 'Best Solution: 4.174766224e-9', 'Solving Time: 9.11 sec (Peak Mem: 6.7 MB)', 'Program Status: Locally optimal', 'Solver Status: Normal completion'.
- Identifier List:** A table listing model identifiers, their index domains, and their definitions.

Identifier	Index domain	Definition
Increaseslaughter	(v,n)	Slaughtered(v,n) == SLtm1(v,n) * Maxincrease(v,n)
Decreaseprice	(v,n)	PS(v,n) == Pstm1(v,n) * Maxdecrease(v,n)
Slaughteredconstraint2006	(co,n)	Slaughtered(co,n) == slaughterd2006(co,n)
MarketClearing	(v,n)	QS(v,n) - GD(v,n) - QEV(v,n) + QIM(v,n) - (EndStocks(v,n) - InitialStocks(v,n)) - Loss(v,n) - sum(n, QT(v,n)) == tradebalance(v)
Globaltradebalance	(v)	sum(n, QEV(v,n)) - sum(n, QIM(v,n)) == EUtradebalance(v)
EUtradebalance	(v)	sum(n, QEV(v,n)) - sum(n, QIM(v,n)) == EUtradebalance(v)
Consumerpricesconstraint	(v,n)	PS(v,n) == P(v,n)
Feedprices	(v,n)	P(v,n) == PS(v,n)
Lossconstraint	(co,n)	Loss(co,n) == 0
Lossconstraintmax	(co,n)	Loss(co,n) <= (QS(co,n)*2*Lossproportion(2005,co,n))
Land_Area_Constraint	(n)	sum(c, Area(c,n)) = (sum(c, Area(c,n)))
MinimumPrices	(v,n)	PS(v,n)*(MP(v,n)) -> 0 == (MP(v,n)/PS(2005,v,n))*(MP(v,n)) -> 0
Quotasconstraint	(v,n)	Q(v,n) == Quotas(v,n)
ImportQuotas	(v,nu)	Q(v,nu) == Q(v,nu) -> 0 == ImportQuotas(v,nu) -> 0
EUimportQuotas	(v)	sum(n, Q(v,nu)) -> 0 == EUimportQuotas(v) -> 0
MinDemand	(v,n)	Q(v,n) == QMin(v,n)
Increase	(v,n)	Q(v,n) == Qstm1(v,n) * Maxincrease(v,n)
Decrease	(v,n)	Q(v,n) == Qstm1(v,n) * Maxdecrease(v,n)

The Excel spreadsheet shows the following dataset parameters:

- Country: Global
- Species: All
- Release date: September 2008

The navigation menu includes: Guide, Key Assumptions, Country Key, Data Key, and Glossary and Sources.

	Summary Tables	Data	Charts
Macro-economics	Macro-economic Summary	Macro-economic Data	Macro-economic Chart
Regional Data	Regional Summary	Regional Data	Regional Chart
Production	Production Summary	Production Data	Production Chart
Animal Feeds	Animal Feeds Summary	Animal Feeds Data	Animal Feeds Chart
Consumption	Consumption Summary	Consumption Data	Consumption Chart
Balance Sheet	Balance Sheet Summary	Balance Sheet Data	Balance Sheet Chart
Treatment Units	Treatment Units Summary	Treatment Units Data	Treatment Units Chart
Animal Health	Animal Health Summary	Animal Health Data	Animal Health Chart

The final output is extracted into a user friendly MS Excel based STORM Dataset.

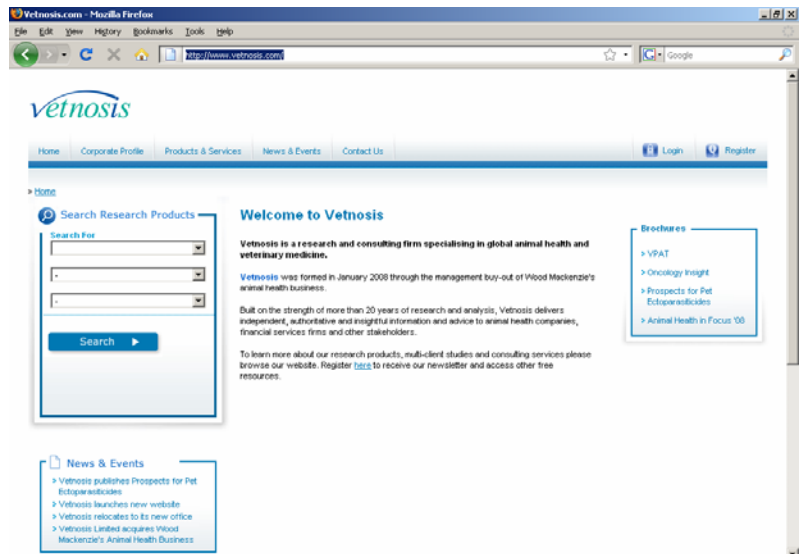
Who needs STORM Datasets?

anyone involved in:

- › Strategic Planning
- › New Products Planning
- › Marketing Research
- › Research & Development
- › General Managers
- › Marketing Managers
- › Product Managers

To view/download a
FREE sample
STORM Dataset
Register at:

<http://www.vetnosis.com/>



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