Enhanced-Efficiency Fertilizers: World Market Update

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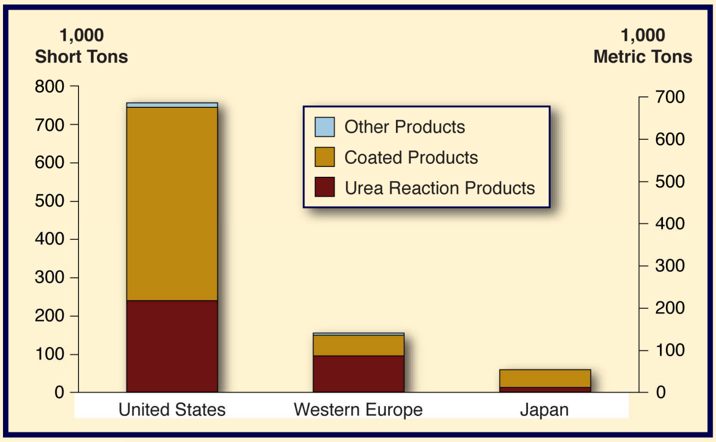
World Market – CRFs

- The United States, Western Europe, and Japan have historically been the three largest world regional markets for CRFs.
  - The U.S. CRFs market is almost five times larger than the Western European market, based on product volume, and nearly 13 times larger than the Japanese market.
  - Urea reaction products account for the majority of CRFs consumption in Western Europe, whereas coated fertilizers predominate in Japan and the United States.

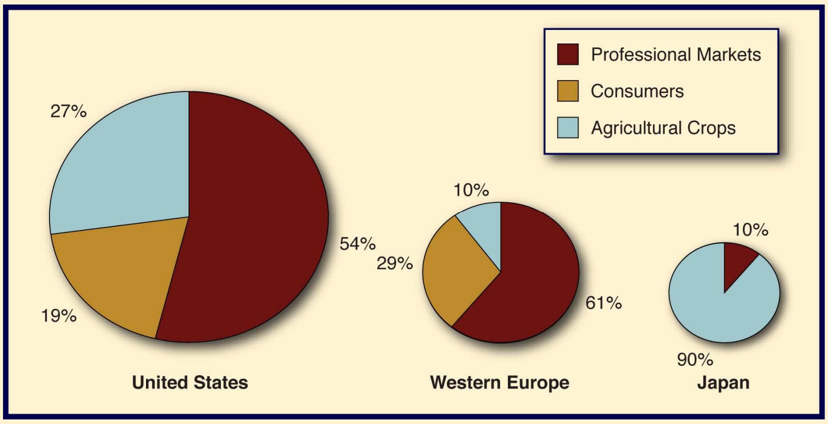
World Market – CRFs (Continued)

CRFS CONSUMPTION BY REGION AND PRODUCT TYPE



World Market – CRFs (Continued)

CRFS MARKET DISTRIBUTION BY WORLD REGION



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World Market – CRFs (Concluded)

CRFS CONSUMPTION BY WORLD REGION AND MARKET (1,000 Metric Tons)

Market Sector	United States (2010)	Western Europe (2009)	Japan (2009)
Agricultural Crops	182	14	48
Consumers	133	41	NEG
Professional Markets	370	85	5
Total[a]	686	140	53
Projected Average Annual Growth Rate to 2015	2.0−3.5%	1.5−2.5%	3.0−4.5%

[a] Data may not add to totals because of rounding.
Source: AgIndustries estimates.

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World Market – SNFs

- The global market for N stabilizers and SNFs is developing rapidly:
  - U.S. consumption of SNFs amounted to an estimated 3,381,000 metric tons of granular and liquid products containing 1,318,000 metric ton of N in 2010.
  - SNFs consumption in Western Europe totaled an estimated 129,000 metric tons in 2009.
  - Nitrification inhibitor-stabilized fertilizers are widely used in Japan; however consumption data are not available.

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World Market – SNFs (Continued)

- Significant events in the world market for SNFs since 2010 include:
  - Formation of a manufacturing and marketing alliance between Koch Fertiliser Trading Sarl and Agrotain International, followed by the launch in April 2010 of Koch Advanced Nitrogen™ (urea stabilized with NBPT) in the United Kingdom.
  - Koch Agronomic Services' October 2011 acquisition of Agrotain International's N Stabilizer and SNF assets.

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World Market – SNFs (Concluded)

- Significant events (Continued):
  - Weyerhaeuser Company's October 2011 licensing of Gavilon Fertilizer, LLC to exclusively market its new NBPT-based urease inhibitor product (Arborite® AG).
  - Koch Fertilizer's launch in France of a new SNF product (Nexen™ Fertilizer) based on its Agrotain® NBPT stabilizer technology in April 2012.

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United States – CRFs

U.S. CONSUMPTION OF MANUFACTURED CRFS BY PRODUCT TYPE (1,000 Metric Tons)

Product Type	2001	2005	2010
Urea Reaction Products			
Urea-Formaldehyde	202	203	214
IBDU	10	10	3
Coated Fertilizers			
SCU/PCSCU	179	211	213
Polymer-Coated	68	125	245
Other Products	9	11	11
Total, All Products[a]	468	560	686

[a] Data may not add to totals because of rounding.
Source: AgIndustries estimates.

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United States – CRFs (Concluded)

U.S. CONSUMPTION OF MANUFACTURED CRFS BY MARKET
(1,000 Metric Tons)

Market	2001	2005	2010
Agricultural Crops			
Corn	2	27	129
Other Field Crops		5	24
Specialty Crops	25	27	30
Total[a]	27	60	182
Nonagricultural Markets			
Consumers	123	132	133
Professional Markets	318	368	370
Total[a]	441	499	504
Total, All Markets[a]	468	560	686

[a] Data may not add to totals because of rounding.
Source: AgIndustries estimates.

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United States – SNFs

U.S. CONSUMPTION OF STABILIZED N FERTILIZERS, 2010-2015
(1,000 Metric Tons, Product)

Market	2010	2015	Average Annual Growth Rate, 2010-2015[a]
Agricultural Crops			
Corn	2,145	2,740−2,939	5.0−6.5
Other Field Crops	1,187	1,379−1,442	3.0-4.0
Specialty Crops	NEG	5−13	NA
Total[a]	3,332	4,124−4,394	4.5−5.5
Turf Markets, Total[b]	49	53−56	1.5−2.5
Total, All Markets[a]	3,381	4,177−4,451	4.5−5.5

[a] Data may not add to totals because of rounding.
[b] Professional lawn care, golf courses, and other professionally maintained turf.
Source: AgIndustries estimates.

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Western Europe – CRFs

WESTERN EUROPEAN CONSUMPTION OF MANUFACTURED CRFS BY PRODUCT TYPE (1,000 Metric Tons)

Product Type	2001	2005	2009
Granular Mixed Fertilizers Based on Urea Reaction Products[a]	81	80	86
Coated Fertilizers			
SCU/PSCU	1	4	8
Polymer-Coated	25	34	41
Total	26	38	49
Others	5	5	5
Total, All Products	112	123	140

[a] UF, IBDU, and minor volumes of CDU.
Source: AgIndustries estimates.

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Western Europe – CRFs (Concluded)

WESTERN EUROPEAN CONSUMPTION OF MANUFACTURED CRFS BY MARKET (1,000 Metric Tons)

Market	2001	2005	2009
Agricultural Crops, Total	7	8	14
Nonagricultural Markets			
Home and Garden	34	38	41
Turf and Public Green	33	37	44
Professional Horticulture	38	40	41
Total	105	115	126
Total, All Markets	112	123	140

Source: AgIndustries estimates.

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Western Europe – SNFs

WESTERN EUROPEAN CONSUMPTION OF SNFS BY MARKET
(1,000 Metric Tons, Product)

Market	2005	2009	2015	Average Annual Growth Rate, 2009−2015
Agricultural Crops, Total	71	88	111−117	4.0−5.0
Nonagricultural Markets				
Home and Garden	5	6	6	1.0−2.0
Turf and Public Green	16	19	21−22	1.5−2.5
Professional Horticulture	13	16	18−19	2.0−3.0
Total	34	41	45−47	1.5−2.5
Total, All Markets	105	129	156−164	3.0−4.0

Source: AgIndustries estimates.

Japan – CRFs

- Japanese production of manufactured CRFs peaked in 2005, declined through 2008, then dropped by 24% in 2009.
- CRFs consumption in Japan declined at an average annual rate of 1.5% between 2001-2008, then dropped by nearly 29% in 2009.
- Causes of the steep drop in Japan's CRFs production and consumption include a severe economic recession, increased costs for fertilizer raw materials, and reduced demand in export markets.

Japan – CRFs (Continued)

JAPANESE PRODUCTION OF MANUFACTURED CRFS
(1,000 Metric Tons)

Product Type	2001	2005	2008	2009
Urea Reaction Products				
UF Products	4.8	4.2	1.0	2.2
IBDU	17.5	12.6	5.1	7.4
CDU	6.6	5.3	4.8	2.3
Total	28.9	22.1	10.9	11.9
Oxamide	0.8	0.4	0.4	0.3
Coated Fertilizers	68.2	88.0	90.8	65.1
Total, All Products[a]	97.9	110.5	102.1	77.3

[a] Data may not add to totals because of rounding.
Source: AgIndustries estimates.

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Japan – CRFs (Concluded)

JAPANESE CONSUMPTION OF MANUFACTURED CRFS BY MARKET
(1,000 Metric Tons)

Market	2001	2005	2008	2009
Agricultural Crops, Total	74.4	69.2	66.1	47.8
Nonagricultural Markets				
Consumers	NEG	NEG	NEG	NEG
Professional Markets	8.2	8.1	8.2	5.3
Total	8.2	8.1	8.2	5.3
Total, All Markets	82.6	77.3	74.3	53.1

Source: AgIndustries estimates.

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