

FACTS THAT FIGURE

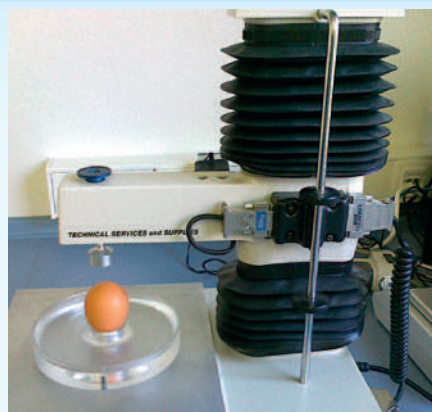
Facts that Figure – Egg quality

In this issue of Facts that Figure, we would like to present some of our most important egg quality measurements. In the breeding program of all H&N layers, the traits egg shell stability, egg-shell colour, albumen height, blood and meat spots and of course, egg weight are recorded repeatedly. There are many well-known breaking strength devices in the market. In the routine recording of shell strength in the research farm, the results of one breaking strength device is usually combined with information about the dynamic stiffness from the “Crack Detector” to improve egg shell stability. However, H&N has more testing methods available which are used for research projects to keep these opportunities for potential improvement in mind as well.



GUTSCH breaking strength device

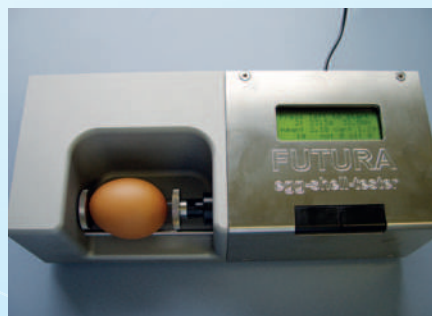
The GUTSCH breaking strength device was used for many years as the most favourable at H&N. It is simple to use, easily portable to farms, robust and delivers reliable data. Unfortunately, it does not only look “old-fashioned” but also the software and data transfer have become obsolete and are no longer compatible with new computer technologies.



TSS breaking strength device

The TSS breaking strength device has its advantages in an enhanced test throughput and revised software unlike the GUTSCH device, which is no longer manufactured. However, this breaking strength device needs a fixed workstation and is therefore located in our egg quality lab.

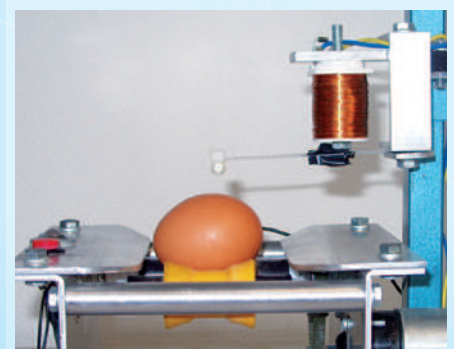
The FUTURA breaking strength device is new in our shell stability measurement collection. It is optimally adjusted to our breeding require-



FUTURA breaking strength device

ments. Each individual egg can be tested in a much quicker way than with other devices. Thanks to modern software, the required egg identification process is now easier to handle.

For nearly ten years now, the single Crack Detector is being used to improve dynamic egg shell stability on a genetic basis. The machine uses the same physical principles as large commercial egg graders which sort out eggs with hairline cracks and other defects. Heritability estimates are almost higher than for breaking strength and genetic correlations to each other are positive. The single Crack Detector gives us additional information to improve the intense strength of egg resistance and has therefore been integrated into the selection index.



Crack Detector

Currently, shell thickness is not being routinely measured for all H&N breeds as the correlation to percentage of cracked eggs is lower as compared to breaking strength. We are, however, measuring shell thickness with a digital micrometer in different regions for egg quality research purposes. Measurement in the equatorial region



Shell thickness – micrometer-screw

is preferred where thickness is more uniform than in pole regions. To withstand the stress of handling from point of lay to the consumer, eggs should have a uniform shell thickness of about 0.35-0.40 mm.

A new method of measurement available in the market is an ultrasound device which also measures the thickness of the egg shell. In order to verify the claimed thickness values of the manufacturer, H&N bought one of these devices. Analysis of repeated measurements for the same egg show low repeatability for egg shell thickness measured by ultrasound which highly restricts the suitability as a selection criteria in the breeding program.



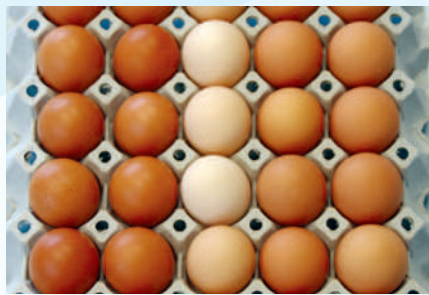
Egg weight

The basis of our selection on egg weight is the mean value of three consecutive eggs from the same hen. To guarantee a flat shape of the egg weight curve as the hen grows older, egg weight is measured at different production stages. Negative relationships to other selection traits such as egg number or breaking strength have an influence on the decisions geneticists make during selection. However, modern breeding strategies simultaneously enable breeding progress in all traits.

Egg shell colour varies from chocolate brown to cream-coloured eggs which are laid by different lines. The preferred egg shell colour of our brown H&N breeds is an attractive dark brown colour which does not become paler at the end of production. Additionally, we are really keen on having high uniformity in egg shell colour for the BROWN NICK pure lines.



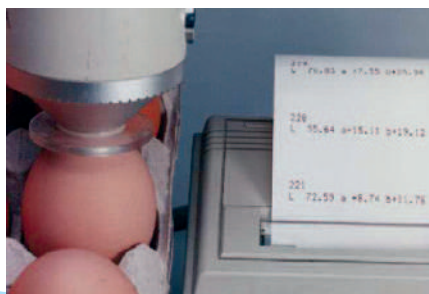
Shell thickness – Ultrasound



Egg shell colour

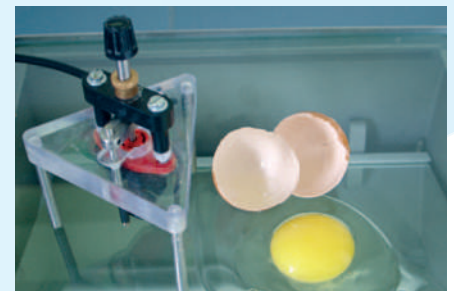
From our perspective, the best method to test egg shell colour is the MINOLTA device. Minolta Chroma Meters are compact tristimulus colour analysers for measuring reflective colours of surfaces. It also enables to test shaped and round samples with good repeatabilities.

Depending on egg white consistency, albumen height varies mainly in storage conditions. Therefore, it is very important to test the eggs of pedigree birds not when they are fresh, but after a defined period of storage. Differences in albumen height which are based on varying egg weights, are corrected in Haugh Unit calculations. Haugh Units are therefore more compara-



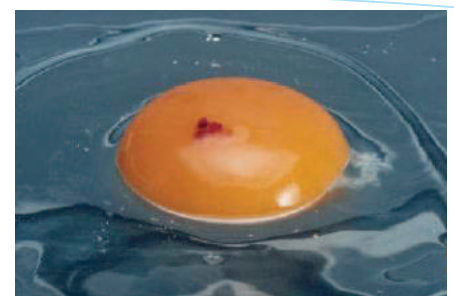
MINOLTA colour measuring

ble when talking about the freshness of an egg. Heritability estimates for egg white consistency are on a medium level and therefore allow improvement through genetic selection.



Albumen height measurement

Blood and meat spots are highly correlated with egg shell colour and are therefore frequently found in brown-shelled eggs as in white eggs. Precise screening of white eggs enable a rejection before consumers are bothered by blood and meat spots in their fried egg. For breeding reasons, brown eggs have to be broken to score each single egg. This is very labour-intensive and heritabilities are moderate. The success on this trait by breeding should therefore not be overestimated.



Blood and meat spots

Capturing egg quality data and incorporating these traits into selection decisions have for a long time now, been one of the core criteria in the H&N breeding programme. High productivity of the white and brown layers of H&N and also the necessity to meet the egg consumers demand for good internal and external egg quality, shall remain of the driving forces for the genetics of H&N.

*Dr. Wiebke Icken, Dr. Matthias Schmutz,
H&N Research Geneticists*

Dr. Gilbert R. Cervantes elevated to the status of fellow by the Phillipine College of Poultry Practitioners

Dr. Gilbert R. Cervantes, the Technical Service Advisor of H&N International for Asia was recently conferred the status of Fellow by the Philippine College of Poultry Practitioners (PCPP). The PCPP is a collegial body of Poultry Veterinarians in the Philippines that advocates for the professional advancement of its members and is committed to the upliftment of the Philippine Poultry Industry. It aims for the promotion of ethical poultry veterinary practice by providing an effective forum for the advancement of professional veterinary expertise. PCPP is an interim member of the World Veterinary Poultry Association. PCPP was founded in 1999 and Dr. Cervantes is one the founding diplomate of the college. He was also president of the PCPP from August 2009 to December 2011. Before becoming president, he served as the chairman of the technical committee and then the Vice President for External affairs.



From Left to Right: Dr. Gilbert R. Cervantes, H&N International, Dr. Herman Cruz (President of PCPP 2012), and Dr. Tomas Acorda (Member of the Board of Veterinary Medicine of the Professional Regulatory Commission of the Philippines)

Dr. Gilbert Cervantes

Excellent Performance of H&N products in different environments

"BROWN NICK" and "SUPER NICK" commercial layers are proving to be very adaptable and capable of excellent performance in conventional and alternative layer housing systems. It is becoming increasingly important for egg laying strains to demonstrate maximum genetic potential also in alternative housing which tends to be more stressful for chickens. This is particularly true in key egg production regions such as Western Europe and North America.

As it can be seen in table 1, four flocks of "BROWN NICK" layers exhibited strong production persistency and excellent feed conversion in non-cage systems. It should be noted that lower

density laying diets were fed resulting in lower body weights and consequently, reduced egg weights. Even with the reduction in egg weight, each of the four flocks was able to exceed the H&N breed standard for total egg mass per hen housed. It is also important to note that each flock exceeded the H&N breeding standard for hen day production in the final four week period from 73 to 76 weeks of age.

In table 2, three flocks of "SUPER NICK" layers in a challenging environment, showed an outstanding persistency with an average of 23 weeks over 95 % of production and 80 % hen day production until 80 weeks of age. All of the

"SUPER NICK" flocks exceeded the standard for egg numbers and hen day production almost reached the standard in all other production parameters. These examples from two different production regions indicate the direction being taken in the H&N breeding program over the last several years, i.e. to improve shell quality and consistent rate of lay beyond one year in production. By continuing to extend profitable single cycle flock performance to gradually increasing ages, the need for induced molting programs will be eliminated eventually. This is a vital consideration in these times of increasing pressure, not only from animal rights activists but also the final consumer.

Rich Wall and Mohammed Chairi

H&N "BROWN NICK" Flock Performance Summary to 76 Weeks of Age Barn System with Wintergarden - HOLLAND 2011-2013							
Flock SN	Egg number/HH	Weeks over 95 %	Weeks over 90 %	Hen day production (%) 73 - 76 weeks	Average Egg weight (g/egg)	Cum Egg masse/HH (kg)	FCR
1	362	20	42	83,6	61,5	22,25	2,04
2	353	11	32	78,8	61,5	21,72	2,06
3	358	4	40	82,2	61,7	22,08	2,05
4	360	14	40	82,3	61,4	22,07	2,05
Average	358	15	39	81,7	61,5	22,03	2,05
Standard	336	6	26	75,2	63,7	21,43	2,12
Difference	22	9	13	6,5	-2,2	0,6	0,07

Table 1

H&N "SUPER NICK" Flock Performance Summary to 80 Weeks of Age Conventional cages Yenishir - TURKEY							
Flocks	Egg number Per HH	Weeks over 95 %	Weeks over 90 %	Hen day production (%) 77 - 80 weeks	Egg weight 80 weeks (g/egg)	Cum Egg masse/HH (kg)	FCR
1	369	31	41	83,2	66,0	23,27	1,97
2	359	18	33	80,8	66,0	22,22	2,00
3	367	21	34	77,3	66,0	22,72	1,99
Average	365	23,3	36	80,4	66,0	22,74	1,99
Standard	362	0	30	76,8	66,3	22,77	1,98
Difference	3,2	23,3	6	3,6	-0,3	-0,03	-0,01

Table 2

Agromix Delegation Visits Turkey



In February, a delegation of sales executives from Agromix Hatchery and Breeding Farm of the Netherlands made a visit to Turkey. The Agromix delegation included Messrs. Christian Bressers, Gert van Drie and Johan de Weerd. H&N staff accompanying them included Mr. Hinrich Leerhoff, Managing Director, Mr. Rich Wall, Vice President and Mr. Mohammed Chairi Area Manager for Europe, Middle East and Africa. The main purpose of the visit was to become more familiarized with H&N "SUPER NICK" white egg layers which Agromix is now introducing to the Benelux market.



Front row left to right: Mr. Ercan Golec and Dr. Ibrahim Bolukbas of CP Standart, Mr. Mohammed Chairi of H&N, Mr. Johan de Weerd and Mr. Christian Bressers of Agromix and Mr. Erkan Uzun of CP Standart.

Back row left to right: Mr. Rich Wall, H&N, Dr. Bulent Dardagan and Mr. Sayan Na Narong of CP, Mr. Hinrich Leerhoff, H&N and Mr. Gert van Drie of Agromix.

The visitors from Agromix and H&N were graciously hosted by CP Standart, a member company of the Charoen Pokphand Group of Thailand and distributor of "SUPER NICK"

layer chicks in Turkey. The delegation visited "SUPER NICK" growing and laying flocks and CP Standart staff provided detailed informa-

tion regarding their success with "SUPER NICK" in the Turkish market.

Rich Wall

H&N Introduction Seminar in Holland

On April 18th, Hans Groot Koerkamp and Agromix team played hosts to more than 120 guests, Laying hen farmers and representatives of the layer poultry industry in the conference center 'Jachtslot Mookerheide' in the village of Molenhoek.

After providing a brief overview of the company Agromix and its development, Hans Groot Koerkamp invited Prof. Dr. Preisinger, Managing Director and Chief Geneticist at H&N International to talk about the selection key points of H&N company.

- Adaptability to different environments and systems of BROWN NICK and SUPER NICK
- High output of saleable eggs per hen housed
- Improved Production Persistency
- Excellent egg quality

Professor Dr. R. Preisinger, knew how to get the audience's attention with his approach on the "Genomics in the selection of laying hens" as well. Closing the event Hans Groot Koerkamp thanked his customers for their loyalty while assuring them of his determination for further development with H&N breeds to better meet their needs. *Mohammed Chairi*



From left to right: Mr. Mohammed Chairi, Mr. Hans Groot Koerkamp, General Manager of Agromix, Mr. Cees Blankestijn, General Manager of Pluriton and Prof. Rudolf Preisinger.

Good Turnout for Philippines Seminar



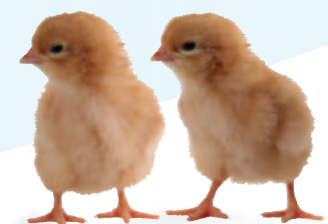
Rich Wall speaking during the seminar

On March 8, 2013 a seminar hosted by Bounty Farms, Inc. was held in Lipa City, Batangas Province, Philippines. The featured speaker was Mr. Rich Wall who gave two presentations; "Overview of the World Egg Industry" and "Introduction to H&N".

The seminar was attended by 21 key egg producers from Batangas which is one of the main egg producing areas of the Philippines with a population of over nine million commercial layers. Also present from H&N was Dr. Gilbert Cervantes, Asia Area Technical Advisor. Con-

gratulations for organizing a successful seminar go to Mr. Cris Sabiniano, Bounty's H&N Product Manager, Mr. Norman Averion and Mr. Ric Mañalac of Multineeds Farmline Inc. the Bounty/H&N dealer in Batangas Province.

Rich Wall



Busy Show Schedule for H&N

Recently H&N participated at three key international poultry expositions. These events included Eurotier at Hannover, Germany in November, 2012; International Production & Processing Expo (IPPE) at Atlanta, U.S.A. in January, 2013 and VIV Asia at Bangkok, Thailand in March, 2013. The newly designed H&N exhibit featuring our corporate slogan "The Key to Your Profit" was unveiled at these shows.

Eurotier is a key event for the egg industries of Europe, the Middle East and Africa. This marked the first time in several years that H&N had an exhibit at Eurotier. This is an indication of H&N's growing presence in these regions. The IPPE show has marked significance for markets in the Western Hemisphere where H&N has re-established its presence in North America and enjoys a growing presence in Latin America. The VIV Asia is an important event for the markets of south and southeast Asia where H&N's presence is also prominent.

Rich Wall



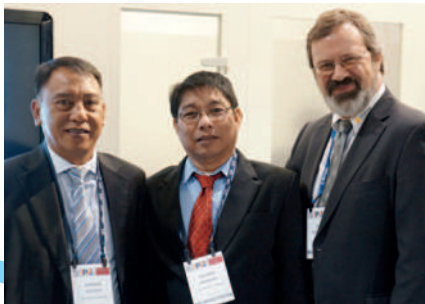
Eurotier: H&N and Global Competence Team (GCT) staff gather at the H&N Exhibit.
From Left to Right: Mr. Hinrich Leerhoff, Mrs. Irina Kindler, Dr. Matthias Voss, Dr. Hans Heinrich Thiele, Dr. Atoussa Mazaheri, Mr. Michael Seidel, Mr. Pavel Bogatkin, Mr. Rich Wall, Mr. Mohammed Chairi (kneeling), Prof. Rudolf Preisinger, Mr. Farhad Mozafar and Mrs. Djanet Ould-Ali



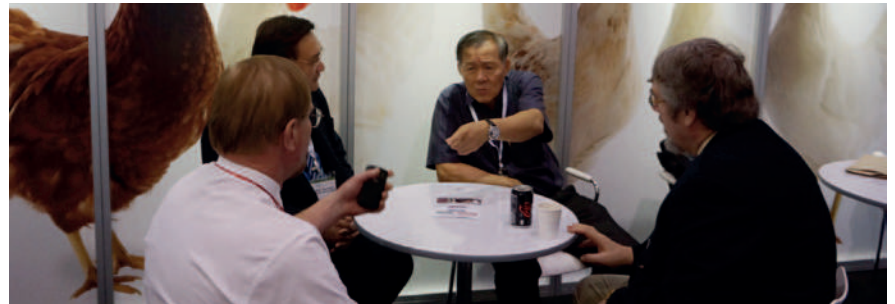
From Left to Right: Rich Wall, Mr. George Gray (Pacific Pride Chicks, Canada) and Mr. Dirceu Sakata (H&N Avicultura, Brazil), IPPE



Mr. Dirceu Sakata with Mr. Shuji Watanabe (Ghen Corp., Japan), IPPE



From Left to Right: Mr. Norman Averion and Mr. Ric Mañalac (Multineeds Farmlines Co., Philippines) with Mr. Robert Pottgueter (H&N), IPPE



Mr. Sompop Mongkolpitaksuk (Charoen Pokphand Group, Thailand) visits the H&N stand at VIV Asia

Editorial: Reflecting on 25 Years With H&N

I am writing this editorial on April 4, 2013, exactly 25 years to the day since I started my career with H&N. H&N will celebrate the 70th anniversary of its founding just two short years from now. To those of us working with H&N today, we owe a great deal to the vision and perseverance of our founder Mr. Arthur Heisdorf who established H&N back in 1945. Although time passes very quickly a lot can happen in 25 years, a whole generation of time. When I started at H&N in 1988 the world was indeed a very different place. Back then, fax machines were just coming into widespread use and some communication was still done by telex. Some of what we take for granted today such as the internet, e-mails, mobile phones, online banking and shopping and "social media" were either just novelties or didn't exist back in 1988. Globally, the Cold War had not quite ended as Germany was still a divided country and the Soviet Union had not yet disintegrated. Islamic extremism was also much less prevalent in those "pre 9/11" times.

Reflecting more specifically on the egg industry, back in 1988 there were 11 egg layer type breeding companies operating as separate business entities. Today there are only six and several companies that were previously independent have now been absorbed into larger business groups. It should be noted that H&N and its sister companies LOHMANN TIERZUCHT and Hy-Line International have operated and continue to operate as separate companies within the EW Group. Animal rights activism did exist but for the most part it was confined to Western Europe. Not much thought was given to such ideas as "sustainability" or "traceability from farm to fork" in the interests of food safety. Back in 1988, H&N's worldwide parent stock sales volume was only one third of what it is today. H&N had just two product lines, "NICK CHICK" for white eggs and "BROWN NICK" for brown eggs. Since then the "SUPER NICK" for production of larger white eggs and the "CORAL" for tinted egg production have been successfully introduced. In 1988, H&N breeding stock was available in only 11 countries. Today 31 countries around the globe have H&N breeding stock and we can be quite confident that

more will soon be added. Again looking at 1988 there was just one production location for H&N breeding stock while today we have six operations strategically located worldwide. The H&N breeding program was relocated from Seattle, U. S. A. to Cuxhaven, Germany in 1997, and significant improvements in the genetic potential of H&N products soon followed. This has been evident at both the commercial layer and parent stock levels.

What Does the Future Hold?

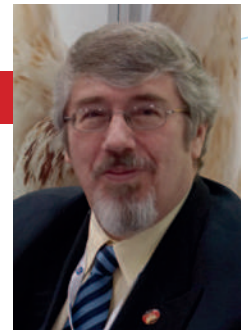
The past is always interesting and it is important to occasionally reflect on what worked and what didn't and to learn from each experience. However, to ensure continued success most of our efforts and attention have to be focused on the future. The most important factor for the success of any business is the people working for it. H&N has devoted a great deal of effort and expense to assemble younger staff that is highly educated, talented and dedicated to continued success. The future is already in good hands in all areas of our business activities; research and development, sales, production, technical service, marketing, information technology, finance and administration.

Most important for a poultry breeding company is the future direction of its genetic research and development program. H&N has already been utilizing marker assisted selection made possible by the full mapping of the chicken genome. This method of selection ensures reliable predictions of genetic progress regardless of the age of the birds from which measurements are being evaluated. This results in faster progress in improving the genetic potential of our products. As has been the case for a number of years already, our selection index focuses on production performance and egg quality both exterior and interior. In addition behavioral characteristics have assumed added importance due to increased adaptation of non-cage production systems in certain regions such as Western Europe and North America. Thus emphasis is also placed on behavioral factors such as temperament and nesting behavior. The ultimate goal continues to be supplying the most profitable laying hens

available regardless of shell color and egg size preferences and locally prevalent layer management systems.

More attention is also being paid to continually increasing the single cycle production length by applying selection pressure to shell quality and color as well as interior egg quality until the end of production. More and more H&N flocks around the world are already exceeding 90 weeks of age in single cycle production systems. Single cycle production is the path to eventually eliminating the necessity of induced molting of egg production flocks. This is an important consideration in terms of animal welfare by eliminating any stress associated with induced molting. From the standpoint of food safety, single cycle flocks will be less likely to produce Salmonella positive eggs than molted flocks. As the H&N breeding program assures continual improvements in feed efficiency and reduced production cost, the issue of sustainability is addressed as well. H&N will continue to strive for constant improvements in genetic potential through investments in staffing, facilities and leading edge genetic technology. At the same time, close attention will continue to be paid to customer support with the aim that it will be robust, timely and meaningful on a consistent basis. These efforts are necessary to ensure that our customers will achieve the maximum benefit from the genetic potential bred into H&N stocks.

It has been a privilege and an honor for me to have served for such a long time in a company that is so well known and respected in the global poultry industry. It has also been my great fortune to have worked closely with so many fine colleagues and customers over the years. You are too numerous to mention by name but you may rest assured that you have my sincere and enduring respect and gratitude for all you have done over the years. We can all go forward secure in knowing that H&N will continue its long tradition of progressive poultry genetics for many years to come. *Rich Wall*



Rich Wall

IMPRINT

Editor: H&N International GmbH
Am Seedeich 9 | 27472 Cuxhaven | Germany
Phone +49 (0)4721 564-0
Fax: +49 (0)4721 564-111
E-mail: info@hn-int.com
Internet: www.hn-int.com

Responsible
Rich Wall, Vice President (rwall@hn-int.com),
Stella Schnor, Marketing (schnor@hn-int.com)
Editorial Cooperation
Rich Wall, Dr. Wiebke Icken, Dr. Matthias Schmutz,
Dr. Gilbert Cervantes, Mohammed Chairi

Realisation and Printing
Teamdruck GmbH, Gutenbergstraße 11
28844 Weyhe, www.teamdruck.com

Am Seedeich 9 | 27472 Cuxhaven | Germany | Phone +49(0)4721 564-0 | Fax +49(0)4721 564-111
E-Mail: info@hn-int.com | Internet: www.hn-int.com

321 Burnett Avenue South | Suite 307 | Renton, WA98057-2570 | U.S.A. | Phone +1 452 277-2885 | Fax +1 425 277-3479
E-Mail: rwall@hn-int.com

U.S. Marketing Office:
E-Mail: rwall@hn-int.com

H&N
International