

The History of Hypeco-CPI-Bovans

Kingsley Smith 2009



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Founders

CPI

In 1951 five Dutch poultry specialists visited the U.S. to study the poultry industry. When they came back two important things compared to the Dutch situation. Firstly, the sizes of houses were generally much bigger, for instance 25x8 m for layers; in Holland at that time houses were much smaller. Secondly, the production of broilers was aiming to have birds weighing up to 1350g at 11 weeks. The so-called “Chicken of Tomorrow” broiler should have a nice drum-stick and a long breast, with yellow shanks, white feathers and an FCR of 3. In 1951 there were 220 independent breeders, a total of 448,000 laying hens, with an average of only 670 layers per breeder. The team that visited the U.S. reported on the progress of hybridization by Hy-Line using the Wallace method. Hy-Line had been imported by Wim Hendrix, then mainly a feed compounder in Boxmeer, (who later established Euribrid) and was a direct competitor to the small breeders. This spurred the breeders to a definite decision to combine their efforts and create a different style of breeding organization. The very strong co-operative feed compounders realized that foreign domination of the breeding sector could be the first step towards a takeover of the feed business. They controlled well over half of the feed trade and they naturally wished to protect their market. In 1955, CLO-controle’ foundation provided the financial guarantees for a co-operative poultry breeders institute (Cooperatief Pluimveefokkers Instituut) – CPI. CPI purchased the land and built a testing and breeding farm at Nuland.

Belgium Farmers Union

The Belgium Farmers Union (Belgium Boerenbond) was a similar co-operative based on feed compounders and small breeders. The breeding farms were based around Poppel and broilers and layers were marketed.

Hypeco

In 1957 through the joint efforts of CPI and the Belgium Farmers Union Hypeco was formed with a 50%-50% ownership. In the years to follow the breeding of the laying and broiler strains was gradually centralized at the Hypeco farms at Nuland and Poppel. In 1971 the Belgium Farmers Union offered their partnership for sale. CPI bought the shares resulting in 100% ownership of Hypeco.

Bovans

In 1954 four Dutch laying breeding farms, facing increased competition from larger American companies formed a new breeding company: Bovans Organisatie N.V. (Bovans Poultry Breeders). The families were the Bongers, van Duijnhoven, van Lankveld and van der Linden (one Bo and three vans = Bovans). The founder of Bovans was Harry van Duijnhoven, together with his wife Nora.

The Bovans breeding centre was at Harry van Duijnhoven's farm at Stevensbeek. The logo of Bovans was made by the brother of Harry van Duijnhoven. Bovans Poultry Breeders soon developed into a strong and successful breeder, selling its products in Europe, South America, North Africa and the Middle East. (Note 1)



Photo 1 Mr Harry van Duijnhoven, a founder of Bovans
(Photo courtesy of Hendrix Genetics B.V.)

Locations

CPI

The headquarters of Hypeco-CPI-Bovans, prior to the sale to Hendrix at Ospel (Hendrix Poultry Breeders), was based in Nuland, about 2 km from Nuland on the A59, 8 km from 's-Hertogenbosch, capital of Noord-Brabant Province.

A 75 acre site was purchased at Nuland by CPI where was built a testing and breeding farm and contained the HQ and all the general farm buildings. The HQ was the base for pure lines, test crosses and rearing facilities. Two other breeding farms for pedigree lines and test crosses were bought in 1966/67, being De Braak near Enschede (Overijssel Province) and Van de Sterren at Oirlo(Limburg province). Later another rearing farm at Deil (Gelderland province) was converted for pedigree lines and test crosses.



Photo 2 Hypeco Nulands HQ (Photo courtesy of Hendrix Genetics B.V.)



Photo 3 Hypeco R&D farm at De Braak (Photo courtesy of Hendrix Genetics B.V.)

Belgium Farmers Union

The Belgium Farmers Union breeding farm was based in Poppel, Belgium, 5km south of the Dutch border near Tilberg and 49 km SW of Nuland.

Bovans

The four families that decided to form Bovans were based in Noord Brabant and Limburg provinces. The Van Duijnhoven family had a farm at Stevensbeek, 8 km SW of Boxmeer, the Van Lankveld family had a farm in Elsendorp 12 k E of Stevensbeek, the Van der Linden family had a farm in Langenboom 19k NW of Stevensbeek and the Bongers family had a farm in Weert, Limburg, 52 km SW of Stevensbeek.

The Bovans company was situated at Van Duijnhovens farm at Stevensbeek, where there were two farms near each other.



Photo 4 The Bovans Stevensbeek R & D farms 1 and 2 (Photo courtesy of Hendrix Genetics N.V.)



Photo 5 The Bovans R & D farm 1 when part of CPI, taken from “10 o’clock” direction in Photo 4
(Photo courtesy of Hendrix Genetics N.V.)



Photo 6 A Hypeco farm (former van der Sterren b.v.) in Oirlo (Photo courtesy of Hendrix Genetics N.V.)

The Hypeco-C.P.I.-Bovans company had several farms under contract for testing mainly layers. The Hypeco business was always specifically chickens- white eggs, brown eggs, dual-purpose chickens, special market types on demand, and in broilers, hatching eggs up to parent flocks.

Franchises

Around 1960 there was a special company inside the cooperatives named C.E.E.B. selling the day-old chicks and hatching eggs. C.E.E.B. was bought by CPI in 1966. That was the start of the Hypeco Export Department. Hypeco and Bovans had several company bases or franchises in areas where their export business was successful.

Mr Gijs Schimmel was the manager of the Hypeco USA base from 1989 and he took over all the activities of Hypeco in 1991 in the US when Hendrix at Oospel (Hendrix Poultry Breeders) bought the company. He was the sole distributor for Hendrix Poultry Breeders in the US trading as Centurion Poultry Inc (CPI!)

An important franchise was in Indonesia. In 1987 Hypeco appointed P.T. Harianoes Sejati in Surabaya as their sole representative to distribute parents of Hypeco broilers and Goldline layers.

Staff

CPI/Hypeco

Initially CPI was managed by Mr Bos and Mr van Wijk, assisted by Mr Van Eekert. When Mr van Wijk died unexpectedly in 1964, the Institute then hired Mr A.P. Barten as General Director.

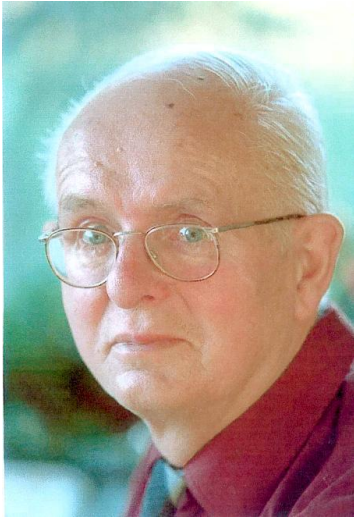


Photo 7 Mr A. P. Barten, General Manager (left) and Mr K. Bos, Geneticist (right)
(Photo courtesy of Hendrix Genetics B.V.)

Later when Mr Bos retired Mr Heijboer was employed as Head Geneticist and Technical Director. The principal geneticists of CPI were Dr van Middlekoop, Mr van Sambeek and Mr van Krey. The Director of Exports was Mr Jo Albers.

Mr Dingeman C. Heijboer

Mr Heijboer studied genetics and husbandry at Wageningen graduating in 1952. He became an officer of the Government in the breeding information service in De Bilt with the task to help the local breeders in genetics and husbandry. In the position of general poultry advisory expert he gave advice to the 100's of small breeders. He was secretary of the Stichting Fokkerijwezen (foundation of poultry breeding), and one of the tasks was to lead the random sample test in Putten, the former RST in Lelystad. He attended the 10th World Poultry Congress in Edinburgh and met John Kimber. This led to an unsuccessful attempt to import some Kimber stock into Holland. The poultry farmers were afraid of the HyLine stock following importation in 1952-53 and he gave advice on how to compete with HyLine. From their strains they made crosses and improved the crosses. He left the Government service in 1957 to take up a post as the technical director of the breeding company and hatchery Garsen in Warnsveld (Garsen was owned by the uncle of Dr J. H. (Koos) van Middelkoop). There Mr Heijboer developed the Rosita-laying hen. Later commercialised by another the breeding company Teenstra. His introduction of Cornish lines was an important step for the broiler breeding program. He worked for Garsen for 15 years and then joined the Cooperatief Pluimveefokkers Instituut (CPI) as Technical Director. His main task was the improvement of the Hypeco-broilers and Bovans-laying hens. After his retirement in 1987 he continued as a consultant with CPI and continued in that capacity with Hendrix Poultry Breeders (later Hendrix Genetics). Heijboer was member of many boards, for example of the Pluimvee gezondheidsdienst (Poultry Health Institute)



at Doorn, the Productschap voor Pluimvee en Eieren (Product Boards for Livestock, Meat and Eggs) and the Poultry Research Centre 'Het Spelderholt' in Beekbergen. Koos van Middelkoop regarded Mr. Heijboer as one of the great poultry geneticists.

Photo 8 Mr Dingeman Heijboer
(Photo courtesy of Hendrix Genetics B.V.)

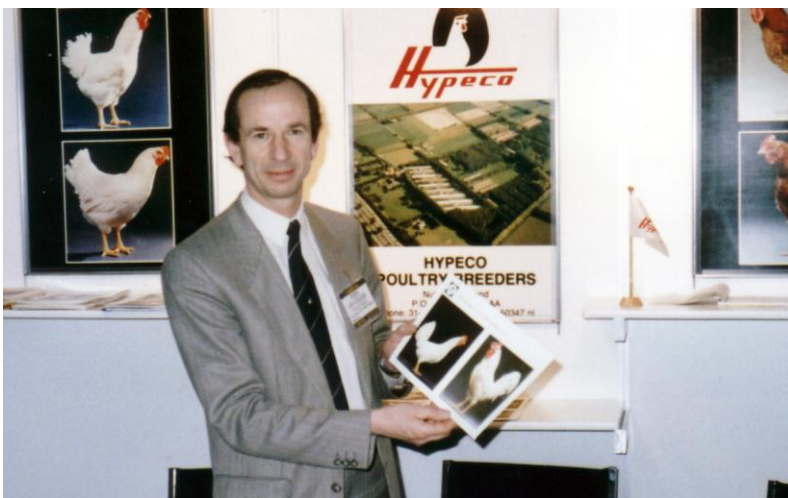
Dr J.H. (Koos) van Middelkoop

Koos was one of the few people who went to University to start in the poultry business. His uncle had one of the biggest poultry breeding companies in the Netherlands, Garsen, (producing Brogar broilers) in the 60's. Because he was used to growing up with poultry breeding, and knew how primary breeding worked, he wanted to go to University and build a career in breeding. After University he joined the staff at Spelderholt in January 1969 working as a geneticist together with Mrs Abel Kuit and van Tijen. While they were involved with layers he was studying the causes of abnormal eggs in broiler breeders for his PhD.

He became interested the dwarfing genes and corresponded a lot with Dr Leclercq in France and Dr Jaap in the US. After he graduated in 1974 he was invited by Dr Paul Siegel for his sabbatical to work at Virginia Polytechnic Institute. He collaborated with Dr Rama Reddy and they published two papers in British Poultry Science. He traveled around the US talking about his work and met Dr Paul Bernier, who made him aware of the autosomal dwarf. He immediately saw that the adw gene might be perfect for industrial application. Upon his return to

Spelderholt in 1976 he successfully convinced the Institute to import these autosomal dwarfs. In 1978 he started work at CPI and was in charge of the broiler program alongside Frans van Sambeek (layers). When Koos was appointed Director, Siebert van Krey was hired to head the broiler program. When CPI was sold in 1991 to Hendrix at Ospel (Hendrix Poultry Breeders he returned to Het Spelderholt working on poultry management.

Photo 9 Dr J.H. van Middelkoop at the Atlanta Poultry 1988
(Photo courtesy of Koos van Middelkoop)





Mr Frans van Sambeek

Frans was born in Boxmeer and raised on a family farm in Sint Anthonis. He attended the Agricultural University of Wageningen and graduated in animal breeding. When he joined CPI/Hypeco he was the layer geneticist until the company was bought out by Hendrix at Ospel (Hendrix Poultry Breeders) in 1991. He continued working with Hendrix Poultry Breeders as Technical Director and has continued in that role at Hendrix Genetics and Institut de Sélection Animale.

Photo 10 Mr Frans van Sambeek
(Photo courtesy Hendrix Genetics B.V.)



Photo 11 The Hypeco farm managers with their wives, the families Baltussen, Steentjes, Heetkamp, van de Veen and Veldhuis. Together with Thijs Hendrix (In the front left) and Arian Groot and at the front right Frans van Sambeek of Hendrix Poultry Breeders. (Photo courtesy of Hendrix Genetics B.V.)



Photo 12 The " old crew of Bovans " celebrating the 50 years of sales Bovans sales by Frans van de Leuvert, the brother of Nora van Duijnhoven (Nora van Duijnhoven - van de Leuvert was the wife of Harry van Duijnhoven a founder of Bovans).

At the back: Thijs Hendrix , Tien Baltussen old Bovans farm manager in Stevensbeek, Nico den Haak and Frans van Sambeek. In the front: Harry Hendrix, the father of Thijs Hendrix, Nora van Duijnhoven - van de Leuvert, Frans van de Leuvert and Dingeman Heijboer. (Photo courtesy of Hendrix Genetics B.V.)

Company Development

CPI and Hypeco

There were several importations of breeding stock from the US initiated by the Dutch Government. In the last night of January 1953 a major storm caused widespread damage and loss of life and property to the low-lying areas of Holland (1500 victims) and England, Belgium, Denmark and France. In the southern provinces (Zeeland, Zuid-Holland and Noord-Brabant) 70,000 people were evacuated and 4500 buildings were destroyed. In total 9% of agricultural land in Holland was flooded. Replacement of losses arranged by the Dutch Government included the importation of livestock among which were Brender Leghorns.

Initially the CPI was to support their Dutch independent breeders but it was evident that it was not working in the long run. So a separate independent breeding organization of sufficient capital, facilities and manpower was formed. At the beginning the focus was on selecting within male lines for layers and then the males were sold to the independent breeders so they could improve the progeny at their location. In 1956 several lines were imported from the U.S both layers and broilers. Also in 1954 they made a decision to eventually start a closed breeding system, with all lines under control of the organization.

The breeders who joined CPI followed the instructions given by the CPI geneticists. The lines they owned were incorporated in the breeding and testing program of CPI. So the new company had at its disposal a lot of original Dutch and some well established lines from the U.S. All those strains and crossing combinations were tested at Nuland and on their own farms in a series of multi-location farm tests.

Mr K. Bos director of research at Nuland co-ordinated the breeding activities and gradually the multiplicity of strains was reduced to 30 and since 1960 the superior crosses marketed under the CPI tradename.

Due to the increasing demand for highly qualified breeding staff most of the member breeders at CPI stopped their actual breeding work and most of them closed their commercial hatchery. By 1965 the last three independent breeder participants in the group were bought by CPI. The operation was completed after the acquisition of Bovans. In the period of rationalization that followed, the broiler breeding was at Nuland and the laying breeding was at the Bovans farm at Stevensbeek. The grandparents were spread around some half a dozen farms in the Netherlands, with some in Belgium and Germany. The Export Division Manager Mr J.H. Albers and his staff developed sales worldwide in the 60's. The early export market was naturally nearby in Germany, Italy and France. Later exports were to Spain, Austria, Switzerland, Greece, and Yugoslavia, and, gradually to the Middle East and Far East. An outbreak of Newcastle Disease in the autumn of 1970 was the

stimulus to diversify markets after those close at hand collapsed. The export team turned a difficult situation into an advantage by sheer hard work. Sales were extended to Libya, Tunisia, Ethiopia, Czechoslovakia, Iraq, Iran, Turkey, Morocco, Argentina, Chile and Japan. A shipment to Morocco of 100,000 chicks on a plane in May 1971 must have been the largest to date. Hypeco claimed to have been the first breeding organization in the Netherlands to supply 100% MG-free parent stock.

Bovans

The four Bovans “families” acquired stocks as individuals from importations in a similar way to the CPI breeders. At some point, probably before WW2, possibly in the mid-1920’s, one of the families acquired the Exchequer Leghorn originally bred in 1904 by Robert Miller in Scotland. It quickly gained popularity as an excellent egg producer. The name Exchequer arose from the definition “a persons supply of money”. (Note 2)



Photo 13 A Exchequer Leghorn of the Wernlas Collection at Onibury, Shropshire, UK (authors photo)



Photo 14 The Exchequer Leghorn bred by Mr Robert Miller of Denny, Scotland.
Photo from Edward Brown (1929)

Bovans Acquisition

For almost 30 years the Bovans layer breeds were bred and marketed world-wide by Hypeco Poultry Breeders. It grew significantly in the 60,s and 70’s.

In 1991 the owners of the Farmers Cooperative with major activities in animal feed, decided that poultry breeding was no longer a vital activity and all the egg type breeding facilities and Bovans gene pool was acquired as a going concern by Hendrix at Ospel and from there on continued as Hendrix Poultry Breeders. The deal included the egg type research farms and staff and several broiler research facilities that were converted to fit the egg type breeding. The Hypeco company had a US base as Hypeco USA and this was sold to Centurion Poultry Inc (Georgia) following the sale to Hendrix (Ospel).

Products and Performance in Tests

The Australorp

In the 60's at times 70% of Dutch brown egg layers were CPI many of which were an Australorp cross. The Australorp was used as a male crossed (mainly) to a R.I.R line cross or a RIR x NH, to produce a black layer. This was a contrast to the typical situation in Australasia where the Australorp was used as a dam usually crossed with a WL. The CPI strain was called the "het CPI Zwartje" (the black bird of CPI). It combined good livability with high egg production and good egg quality. On the negative side the bird had black feather stubs, being large it had a high food consumption. The Red 456 replaced the Australorp and among other advantages it had a bigger egg. By 1975 the influence of the Australorps was over except as a female line in a three or four-way cross.

The Nera

The Nera replaced the Zwartje and was produced from RIR and Barred Rock with the Barred Rock line originating in Belgium. As the popularity of the brown layers such as the Hubbard Golden Comet and Warren Studler SSL grew the local market for black birds decreased. However, from the 80's onwards the Nera was exported and a large market developed in South America, China, Asia and Africa. Some customers were ordering up to 20,000 Nera parent stock and therefore the product was important to the company. In Western Europe, where the movement in bio/ecological production was expanding, some companies began using the Nera as an identifiable product and because it is a very hardy layer.

Brown Egg Layers

For a while CPI was a distributor for S.A Studler and so CPI (Hypeco) could not develop and market a brown bird for Holland. For several years Hypeco had a brown egg layer (Nera) based on a strain of Australorp and a feather sexable (the so called R456/GL-54) brown Hampshire type layer.

White Egg Layers

The white egg market in Holland was substantial prior to the change to black birds. At Bovans through the efforts of Mr van de Leuvert the White Leghorn had an important share of the German and Swiss market. In 1969 Bovans had the White Leghorn D201. In 1972 Bovans White Leghorn was branded the "EA" and in 1975 a new product was added a feather-sexable WL. In 1986 Bovans White gained access to and success in the US market.

Barnevelder and Welsummer

Two Dutch old breeds, the Barnevelder and the Welsummer have dark brown shells. The Barnevelder evolved the earlier starting around 1850 when the local Barneveld stock had genes from Cochins, Brahmas, Langshans and Buff Orpingtons added in various crossings over a 50 year period. The resultant stocks were good layers producing a dark, coffee brown eggs. In the village of Welsum around 1900 local farm fowl were crossed with Asiatic breeds giving a farm-type and a Malay type. Both produced dark brown eggs. Genes were added from the Barnevelder, R.I.R. and Partridge Leghorns. Both were used in commercial crosses to produce darker brown

eggs (van Wulfften Palthe, 1992). However both old breeds had poor disease resistance; the Welsummer was very susceptible to Mareks. In the 50s the use of the Barnevelder was over due to non-compatibility for common operations. However the influence of the Barnevelder was revived around 1990. Retired Heijboer made some combinations to improve its productivity and disease resistance and maintaining the nice brown eggshell. After 1-2 years it became a closed population and is now maintained in the Hendrix gene pool for use in the future. Some small markets for extreme brown eggs can emerge with a special recognizable bird on free-range. The same idea works with the Nera because it is recognisable on free range. The disadvantage is that the Nera does not have the nicest brown eggs, otherwise you would have a recognizable bird and shell colour.

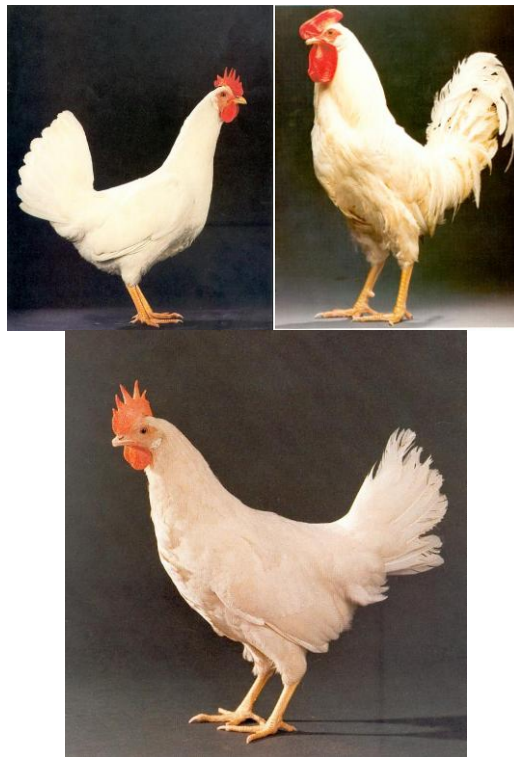
Dwarf Layers and Broilers

Mr Heijboer was the first geneticist to commercialize the dwarfing gene. Although it was reported in several publications in the 60's and early 70's (e.g. Bernier, and Arscott, 1960; Merat, 1970; Selvarajah et.al 1970 and Mohammadian and Jaap, 1972), Heijboer took the idea and used it in the breeding program for layers when he was working for Garsen (NL) and published the results. When as a result of Merat's work, INRA (France) tried to patent the procedure it was discovered that Heijboer had already been published it before.

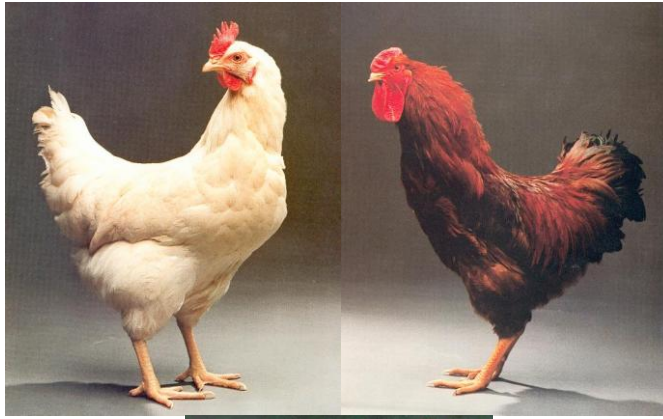
The dwarf layer was never marketed at Hypeco because like everyone else who worked with the idea Hypeco subsequently found that it was it was difficult to go for a small bird and keep egg size up.

Performance of Parent and Commercial Products in 1991

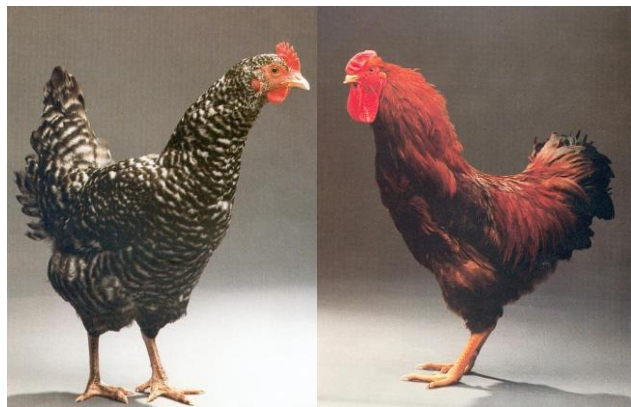
The photos and performance data are from the company marketing brochures.



Bovans White layer parents (Upper)
White layer (Lower)



Hypeco Goldline parents (Upper)
Goldline 54 layer (Lower)



Hypeco Nera parents (Upper)
Nera layer (Lower)

Typical layer performance from 21 to 80 weeks of age (at 1991)

Trait	White	Goldline 54	Nera
Body weight g 20 weeks	1300-1400	1690	1690
Age 50% production weeks	22-23	22	22
Peak production HD%	92	91-92	91
Egg weight average g	61-62	63	63
Egg production HH number	313	310	295-300
Egg mass kg	19.1	19.5	18.9
FCR	2.1-2.3	2.35	2.3-2.4
Body weight end of lay g	1700-1850	2250	2300-2400

Parent performance from 21 to 68 weeks of age

Body weight point of lay g	1380	1600	1650
Mortality and selection %	8	8	8
Peak production %	91	91	91
Egg production HH number	244	237	232
Hatching egg number	202	204	194
Hatchability average %	85	85	85
Female chicks HH number	85	86	82

Performance in Random Sample Tests

The Bovans layers were regularly entered in RST across Europe in the 70's and 80's. A summary of three of the European RST analyses are shown below. Over the period from 1979 to 1986 the egg laying performance of Bovans White improved relative to its main competitors and the good feed efficiency was maintained. In 1980 the Bovans Goldline was a middle of the range performer.

Performance in European RST

Bovans White 1979

Breed	Adult mortality %	Eggs/HH	kg Feed/kg egg mass	Egg weight g	Final body weight kg
Lohmann LSL	No data	278+	2.65+	62.0	1.87
Hisex White	"	277+	2.75	59.3	1.80
DeKalb XL	"	274+	2.68+	60.4	1.90
Shaver 288	"	272	2.72	61.7	1.92
Bovans White E	"	271	2.68+	58.6	1.90
HyLine W36	"	264	2.74	61.4	1.84

Bovans White 1986

Breed	Adult mortality %	Eggs/HH	kg Feed/kg egg mass	Egg weight g	Final body weight kg
Lohmann LSL	No data	303	2.35	61.9	1.78
DeKalb XL	"	294	2.38	60.4	1.84
Bovans White	"	291	2.37	62.1	1.90
Hisex White	"	289	2.42	61.5	1.78
Shaver 288	"	281	2.47	61.3	1.86
Babcock B300	"	278	2.49	60.8	1.88

Statistical analyses were not carried out in the 1986 European RST Summary

Bovans Goldline 54 1980

Breed	Adult mortality %	Eggs/HH	kg Feed/kg egg mass	Egg weight g	Final body weight kg
ISA Brown	6.5	278+	2.62+	63.6+	2.42
Hisex Brown	6.1+	273+	2.70	61.4-	2.41
Bovans GL54	6.3	270	2.71	63.6+	2.43
HyLine Brown	6.0+	269	2.72	61.7	2.45
Lohmann LSB	6.6	268	2.73	63.1+	2.36
Babcock B380	6.0+	260-	2.73	63.0+	2.22
DeKalb GL	6.5	258-	2.76-	65.0+	2.40

The + and – suffix are those used in the RST results to show performances significantly better (+) or poorer (-) than the average.

Broilers

Broiler breeding started at CPI in the early 1960's when they moved from the dual purpose stock (Cornish x (New Plymouth x RIR) to a specific broiler program. The Hypeco white broiler was called the Hypeco . By 1969 the largest Dutch poultry integration used the Hypeco broiler (white by hereditary and fed "white making" feed formulations). In 1971 the Hypeco Broiler specifications were: losses 1-2% to 9 weeks; live weight, 1500g at 7 weeks and 2000g at 9 weeks; FCR 1.85-1.95 at 7 weeks, 2.1-2.2 at 9 weeks. From a flock of 11,000 at 58 days the following data was obtained: mortality 2.1%, FCR 2.18, male live weight 2175g, female live weight 1700g; oven ready (less giblets) males 1523g, females 1191 g.

Meat yield at various oven-ready (less giblets) weights: 650g - 71%; 750g - 72%; 850g - 72.2%; 950g - 71.7%; 1050g - 73.5%; 1150g - 72.8%; 1250g – 74%; and 1350g - 73.9%.

The broiler could be supplied to integrators with white or yellow skin without a change in performance. The parents produced 140 to 160 eggs in 9 months of which 125 to 145 are settable. Losses during rearing including culls were claimed to be 6-8% with 1.5% per month losses during lay. Hens weighed 2590 to 2773g at point of lay and 3273g to 3405g at end of lay.

Hypeco produced and marketed a MINI broiler breeder for a time in the 1980's. Early in the sixties Bovans (van Duijnhoven) also bred broilers and for a time marketed a broiler (101) that had a performance similar to the Hybro and better than the Starbro at the time.

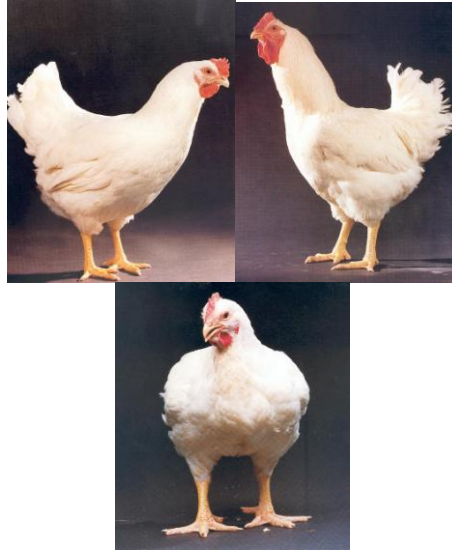
Results of a 1964 Putten broiler RST to 56 days of age

Breeder	Stock	Body weight 56 days g	FCR
Van Duijnhoven, Stevensbeek	Bovans Broiler 101 W	1339	2.39
Euribrid NV, Boxmeer	Hybro 431 W	1337	2.41
Heijenck, Wilp, Gld.	Thomson Broiler 777 W	1177	2.35
Heijenck, Wilp, Gld.	SW 131xThomson Broiler 77 Y	1165	2.48
Rotshuizen NV, Wolfheze	Shaver Starbro 15 W	1140	2.50
Derksen NV, Loo/Duiven	Derloo 9206 W	1138	2.43
Euribrid NV, Boxmeer	Hybro 432 Y	1132	2.47
Derksen NV, Loo/Duiven	Derloo 7806 Y	1111	2.43

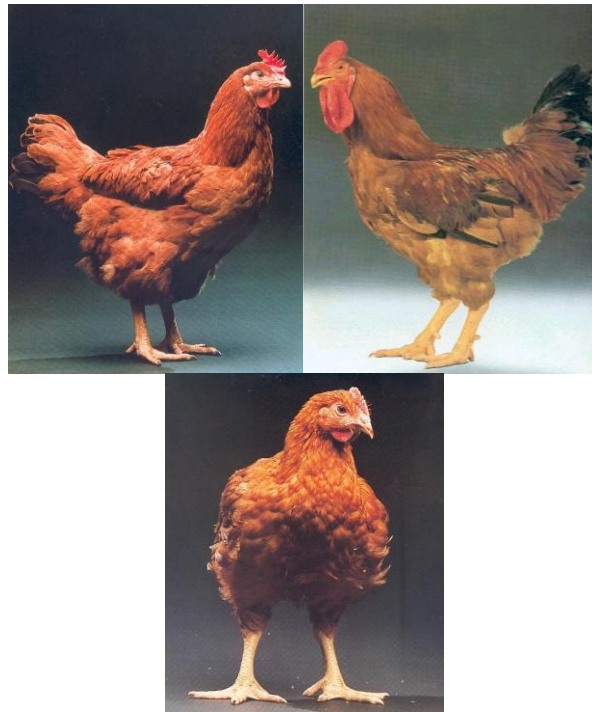
W = White skin, Y = Yellow skin

Performance of Parent and Commercial Products in 1991

The photos and performance data are from the company marketing brochures.



Hypeco White broiler parents (1991) (Upper)
Commercial broiler (Lower)



Hypeco Red broiler parents (1991) (Upper)
Commercial broiler (Lower)

Typical broiler performance to 8 weeks of age (at 1991)

Trait	White	Red
Body weight g	2570	2240
FCR	2.12	2.17
Yield %	69.4	69.0
Brest meat %	20.6	19.0

Parent performance from 23 to 62 weeks of age (at 1991)

Trait	White	Red
Peak performance %	83-85	80
Total eggs HH number	173	158
Hatching eggs HH number	163	149
Chicks HH number	136	126
Hatchability %	83-84	84-85
Female: end body weight kg	3.4-3.5	3.4-3.5
Male: end body weight kg	4.8-5.0	4.5-5.0

Breeding Systems

Broilers- CPI

The institute had several lines from various sources. A severe testing program for the lines started by Mr Bos and continued by Mr Heijboer. Following those comparisons of the lines some were discarded. One line in particular grew very fast but had poor body conformation, Mr Heijboer started measuring meat yield in 1972 and found large differences between families. Generally the better and many pure lines were maintained. Different broiler strains were bought from all over the world and were used in the CPI program. The program had always been emphasized more on the parent breeders and unlike other companies such as Ross and Cobb, less on the final product. CPI was noted for having good broiler female with high fertility and good final broiler product. In 1991 the Hypeco female produced around 163 hatching eggs at 62 weeks (see above) while in 1993 the Cobb female in Japan e.g. averaged about 153 hatching eggs at the same age. By contrast, the Hubbard female produced around 158 hatching eggs at the same age. In respect of female parent performance then Hypeco could justify the claim in advertisements in 1987 that they had "World Champion" broilers.

While the Dutch and French markets wanted white skin broilers the UK market was for yellow skin. So Hypeco had a special breeding program for both white and yellow skinned broilers. The double white broilers meant white skinned broilers grown on feedstuffs with a little bit of carotene (maize).

In the Japan market its most interesting customer bought a special Hypeco for its taste. When Hypeco went out of business other breeders asked how those broilers were bred because they wanted to sell them to the Japanese customer. Hypeco - CPI made many tailor-made combinations for customers. When they asked for a black bird they made it. They were the only breeding company in the world that had feather sexing Cornish line. This was unique since most people thought that it was not possible to feather sex a Cornish line. When the company was sold to Hendrix (Ospel) the broiler lines were discarded except the ones that were abroad e.g. those in Zimbabwe and India.

Layers

The main breeding system practiced by Mr Bos and Mr Heijboer was recurrent selection tests starting in the early 60's. This was a few years earlier than other companies such as Hisex and Dekalb. The longer period of

recurrent testing has produced layers that were more robust and stronger birds than many of the competitors. Later the breeding system included some Recurrent Reciprocal Selection.

Feather sexing in the White Leghorns started about 1972 and was successful in the sense that the practice did not lead to problems with performance due to leucosis. Many companies did not have the same success e.g. Babcock. (Details of this problem are given in the History of Babcock). DeKalb stocks were feather sexable only after the Hendrix purchase in 2000 and the Hypeco/Hendrix Genetics techniques were implemented. (Note 4)

Selection Issues (Layers and Broilers)

Egg Quality

Most of the egg measurements were done at Stevensbeek and some in a laboratory at Nuland. Egg characteristics of broiler breeders were monitored to keep the shape normal. A lot of attention was paid to reduce the variability of watervapour conductance because it is difficult to optimize incubator controls if the variation in watervapour loss is high.

Fertility and Hatchability

Selection was for high fertility and a high percentage of chickens from all fertile eggs. While many geneticists have believed hatchability has very low or zero heritability, Koos van Middelkoop claimed it was it is high. He believed it was important to distinguish between the shell and interior quality coming from the mother and the quality of the embryo that is the mother and the father together.

Housing

In the breeding program the broiler breeder female lines were in cages and the male lines were on the floor. Since they had a severe selection program for hatching egg production, with no abnormal eggs, no problem eggs and a good number of healthy quality eggs cages were only used to control egg quality in pure lines. Hypeco was always testing the pedigrees and the crosses on the floor, to make sure that the females were normal in nesting behaviour.

Feed efficiency

Layers

Selection for feed efficiency was always in progress and watching Residual Food Intake. There was no belief in the improvement of feed efficiency by a formula. To do so would likely produce a bird with a small egg and even a smaller bird. Selection for feed efficiency alone could lead to a bird like the kiwi, a big egg from a small bird (Note 3). Selection for feed efficiency was considered counterproductive. It was considered better to select for a good body frame, with a good egg and a bird that eats about 5-10% more than the best. Otherwise whenever a bird encounters a problem it would go into a negative energy balance and egg production stops. In terms of feed efficiency the first rule was that a bird has also to cope with problems of the bad food, bad weather or diseases. The belief was not in a ratio (feed/egg weight) but in the selection program, what might be missed and what was needed. In a selection program where improved FCR is a goal rather than a selection criterium, water intake is also important.

In any selection program three things should be distinguished: what you are selecting for, what you are scheming at and the cost of implementing it.

Broilers

On the broiler side there was a similar discussion, the first aim was not feed efficiency but growth rate, livability, fleshing and then feed consumption according to those three traits. It was considered important to

watch the final product and not pay too much attention to the pure lines otherwise a negative heterosis might arise; thus if you have two lines with optimum feed consumption the chances are very high that the cross might not eat enough to show its genetic potential and so growth or fleshing are reduced. So feed intake, growth and feed efficiency evaluations must be carefully managed in pure lines since they can only be properly tested in a cross.

Carcass conformation

Carcass assessments were introduced in 1972. Among others a policy was started to measure fleshing by cutting up pedigree birds. It was critical to pay attention to the shape of the breast-bone in all aspects. At the outset breast blisters were a problem, the breast-bone tip was too high and the point on the breast bone was too steep. It was also important to pay attention to the physiological balance during muscle growth in the prevention of green muscle disease.

Feather growth and feather sexing

In broilers attention was paid to the early(k+)(Note 5) and late(K) feathering genes for sexing purposes. The sexer must be easily able to distinguish males and females. Within the early and late feathering lines it is possible to have big differences in growth rate. So a male with the late feathering gene may have a very slow feather growth rate so that at day 1 it might have shorter primary feathers than the secondaries and regarded by mistake as a fast feathering female.

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Interviews

Dr J.H. (Koos) van Middelkoop at Lelystad 24/03/03

Mr Thijs Hendrix, Mr Frans van Sambeek, Mr D.C. Heijboer and Dr J.H. (Koos) van Middelkoop at Boxmeer 31/03/03

Photos of the company and staff are courtesy of Hendrix Genetics. The photos of stock were from brochures courtesy of Hypeco-CPI-Bovans .

All of the past issues of the poultry magazines Poultry Industry (UK), Poultry World and Poultry International and some Poultry Tribune were sources of information about the advertising, personnel, products, purchases and sales of the breeding and related companies.

Notes

1 History of Bovans Layer from <http://www.bovans.com/history> accessed 13/08/99

2 Robert Miller took over the management of the Boards Farm after the death of his father. The Boards Farm was in Dunipace near Denny, in the Falkirk district in Scotland. When he commenced poultry breeding he purchased the best lines of White Leghorns, Wyandottes, Buff Rocks and Runner Ducks that were available to him (Falkirk Herald, 1907). Mr Miller was of the opinion that Black Minorca blood was introduced into his Leghorn line in the 1890's and this was responsible for the appearance of the exchequer markings in four chicks from 4000 he had hatched in 1904. In 1924 a breeder living in the hills of North Yorkshire claimed to have obtained an average of 291 eggs from 10 pullets (Brown, 1929). We now know this is due to the mottling gene.

After public introduction in 1907 the Exchequer Leghorn quickly gained a reputation as a remarkable layer; day-old chicks selling at a 70% premium over other Leghorns breeds he was selling, 84p/dozen v 144p/dozen (Falkirk Herald, 1907).

3 Kiwis produce on average 2 eggs a year, each about 430g, about 20% of the female body weight, mating pairs fledging from 0.1 to 0.5 juveniles a year and have peak reproductive performance in the late 20's (years) McLennan, J.A. and Potter, M.A. (1993).

4 In terms of historical firsts Bob Parks, of Parks Poultry Farm, produced a feather sexable brown egg layer named the White Sex Link first marketed in 1952 (pers.comm).

5 The naming of major genes controlling feather growth has been subject to change. F.B.Hutt (1949) called the genes rapid(k+) and slow(K), Ralph Somes (1988) in his International Registry of Poultry Genetics Stocks names the same genes as rapid and late. However where selection for, or the existence of, faster or slower feather growth is also considered, it is helpful to use, when discussing feather growth, the opposite terms: **early and late for k+ and K and fast and slow for the many minor genes that affect feather growth.**

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