



ABOVE LEFT: Beak dipping is a sure way of administering the vaccination but it is laborious in poultry enterprises where chicks are delivered in thousands. **ABOVE RIGHT:** Ocular vaccination is a sure way of administering vaccine directly to the mucous membranes but, again, it is a labour intensive method. (Photos by courtesy of Intervet).

Vaccination Against Infectious Bronchitis in Broilers

THE INTENSIFICATION of poultry farming has led to all sorts of problems which previously were unknown or unimportant. In the slaughter chicken sector the problem of respiratory disorders has become of importance. Various causes are to be mentioned for this. Think of the closely populated houses bad or insufficient ventilation, combined with too high a percentage of ammonia, bacterial and virus infections. This last group especially is receiving a great deal of interest: to it belongs, Infectious Bronchitis (IB).

Respiratory problems mostly appear between the 3rd and 4th week and often persist during the whole of the fattening period. It can have a serious influence on growth and food conversion, while the fall-out often greatly increases.

In many cases, IB is considered to be the culprit. The laboratory research indeed confirms the impression from practice, that in an important part of the cases of illness, IB is responsible or partly responsible.

The question then arises, how the fight against IB can be most effective. At present vaccinations against IB are carried out, but outbreaks still frequently happen. That is why an answer will have to be found to the following questions.

- What is the best age for the chickens to be vaccinated?
- In what way will vaccination have to take place?
- Is the usual H120 vaccine really suitable?

The opinions about this tend to differ.

In practice we usually vaccinate via the drinking water or by means of spraying at an age of 5 to about 15 days.

Extensive tests have been carried out by the health service for poultry to determine the most favourable time for vaccination. We tried vaccinating with H120 on the 1st, 5th, 10th, 15th and 20th day after hatch. The vaccine was administered by the eye and nose dip method. The quantity of vaccine used, was always half of a hen dose per chicken.

Four weeks after vaccination some birds were contaminated with a strong disease causing IB virus (field strain), to find out if they were immune. It was shown, that 4 weeks after vaccination at the 1st, 15th or 20th day respectively, good protection had been built up.

The protection was rather disappoint-

Vaccination Contre La Bronchite Infectieuse Des Poulets De Chair

Sommaire—Dans le secteur des poulets destinés à l'abattoir, le problème des ennuis respiratoires est devenu très important. Actuellement, on s'intéresse beaucoup à ce type d'ennuis; la Bronchite Infectieuse (BI) en fait partie. Les problèmes respiratoires apparaissent surtout entre la 3^{ème} et la 4^{ème} semaine et ils persistent souvent pendant toute la période d'engraissement.

Dans de nombreux cas, la BI est la coupable. La recherche en laboratoire confirme que BI est bien responsable. Il faudra trouver une réponse aux questions suivantes. Quel est le meilleur âge pour vacciner des poulets? De quelle façon

devra-t-on vacciner? Le vaccin habituel H120 convient-il vraiment?

Nous avons fait des essais de vaccination avec H120 les 1^{ers}, 5^{èmes}, 10^{èmes}, 15^{èmes} et 20^{èmes} jours suivant l'éclosion. Le vaccin a été administré par l'oeil et la méthode du trempage du bec. La quantité de vaccin utilisée a toujours été d'une demi dose de poule par poussin. Quatre semaines après la vaccination, on a contaminé quelques bêtes avec un fort virus provoquant la BI, pour voir si elles étaient immunisées. On a montré que 4 semaines après une vaccination aux 1^{ers}, 15^{èmes} ou 20^{èmes} jours, on avait obtenu une bonne protection.

La période la plus précoce où on a obtenu une bonne protection a semblé être à un âge d'environ 3 semaines pour une vaccination au

premier jour. La vaccination au premier jour semble donc offrir à partir de 3 semaines une protection qui durera en tous cas jusqu'à environ la septième semaine.

Pour des raisons pratiques la vaccination avec des gouttes dans l'oeil et le nez demande vraiment trop de main d'oeuvre et elle est guère utilisable. Il fallait donc chercher une alternative acceptable. Pour le moment, elle a été trouvée avec la vaporisation ASL. C'est un vaporisateur qui permet de produire de grosses gouttes. Il convient très bien pour vacciner des poussins dans les boîtes à poussins.

Dans nos tests nous avons toujours travaillé avec le vaccin H120 de toutes les marques connues de notre pays. Quelle que soit la marque, les résultats ont été tels qu'on peut dire

que tous les vaccins, quand ils ont été utilisés le premier jour, ont donné de bons résultats.

Vacunación de Pollos de Asar Contra Bronchitis Infecciosa

Resumen—Se ha hecho importante el problema de desórdenes respiratorios en el sector de pollos para sacrificio. Este grupo de desórdenes está recibiendo gran atención, y pertenece a él la Bronchitis Infecciosa (BI). Los problemas respiratorios aparecen en su mayor parte entre la 3^a y la 4^a semana, y persisten a menudo durante el período íntegro de engorde.

En muchos casos, la culpable es (Continúa en la página siguiente)

An extra ace in your hand with Hisex Brown



Summary of field results hisex-brown layers (13 month production)	
Average production (%)	72.5
Average number of eggs per hen/day	287.5
Average egg weight (grams)	63.1
Total weight of eggs produced (kg)	18.01
Feedintake per day (grams)	124.2
Feedintake per kilogram of eggs produced (kg)	2.73
Average mortality (%) during laying period	0.38
	p/month

Over the last few years Hisex brown has proved to be a best seller - a chick with qualities you can trust. A chick that ensures success.

Hisex brown is the bird that will fit in perfectly with the pattern of your business. And that amply proved by the low mortality rate during the laying period: 0.4% per month.

Egg weight, too, is another of the exceptional qualities of this brown egg-laying Hybrid. Along with its production, food consumption and feed conversion. The percentages in the accom-

panying table clearly show why. Experience has shown that skilful management can produce even better results.

As for management Euribrid is the company famous for its guidance and advice.

So isn't it time you got that extra ace!

Euribrid B.V., P.O. Box 30, Boxmeer (Holland)
Phone: (08855) 2051*
Telex: 48080

An extra ace: choose Hisex brown.

Euribrid



hisex



A research station which suggested a spray (not an aerosol) when the chicks were in their boxes found a spread of infection from farm to farm via the boxes. (Photo by courtesy of Stichting Gezondheidsdienst voor Pluimvee).

ing after vaccination in the 5th day, and after the vaccination in the 10th day it was even worse. The earliest time, when good protection was present, seemed to be at about the age of 3 weeks, after the 1st day of vaccination. In the case of vaccination at an older age, this point of time moved up, so that in many cases real protection was only available around about five weeks.

This is, of course, far too late, seeing

that by then already many problems are present with the broilers. The first day vaccination therefore appears to offer a protection from the 3rd week and in any case will last about an age of 7 weeks. This period is just right for broilers. An extra advantage of first day vaccination is that the chickens have received an antidote against IB via the egg. This will prevent a vehement reaction when the chickens are vaccinated.

BI. Las investigaciones en laboratorios confirman que la responsable es BI. Será preciso hallar una respuesta a las siguientes preguntas. Cuál es la mejor edad para vacunar las gallinas? De qué manera deberá ser hecha la vacunación? Es realmente apropiada la vacuna usual H120?

Hicimos un ensayo, vacunando las aves con H120 el 1°, 5°, 10°, 15° y 20° día después de nacer. La vacuna fue administrada por el método de gotas oculares y nasales. La cantidad de vacuna empleada fue siempre la mitad de una dosis para gallinas adultas. A las cuatro semanas después de haber sido vacunadas, se contaminaron algunas de las aves con un fuerte virus causativo de BI (cepa de campo), para descubrir si eran inmunes. Se reveló que a las cuatro semanas después de la vacunación en el 1°, 15° o 20° día respectivamente, se había generado buena protección.

El momento más temprano en que hubo buena protección presente, pareció ser a la edad de 3 semanas, después del primer día de vacunación. Por consiguiente, la vacunación en el primer día parece ofrecer protección desde la tercera semana y, de cualquier manera, se mantiene hasta la edad de 7 semanas.

En cuanto al uso práctico, la vacunación por el método de gotas oculares y nasales es realmente demasiado laboriosa y menos apropiada. Por consiguiente, debemos buscar una alternativa aceptable. Por el momento, la alternativa está en el rocío ASL. Este es un rocío con boquilla tal que se pueden producir gotas más grandes. Es mejor vacunar los pollos en sus cajas.

En nuestras pruebas hemos traba-

jado constantemente con la vacuna H120 en todas las marcas conocidas en nuestro país. Sin consideración de marca, los resultados fueron tales que se puede decir de todas las vacunas que, al darse en el primer día, rindieron buena protección.

IB-Impfung bei Broilern

Zusammenfassung—Auf dem Schlachtflügelsektor hat das Problem der Atmungsstörungen Wichtigkeit erlangt. Das Interesse an dieser Art Erkrankungen ist gross; die infektiöse Bronchitis (IB) gehört in diese Kategorie. Atmungsprobleme treten im allgemeinen zwischen der 3. und 4. Woche auf und bleiben oft über die gesamte Mastperiode bestehen.

In vielen Fällen ist die IB der Schuldige. Dies wird anhand von Laboruntersuchungen festgestellt. Auf folgende Fragen muss eine Antwort gefunden werden: Welches ist das beste Impfstoff? Auf welche Weise soll geimpft werden? Ist der übliche H120-Impfstoff wirklich geeignet?

Wir haben Impfung mit H120 am ersten, fünften, zehnten, fünfzehnten und zwanzigsten Tag nach dem Schlupf versucht. Der Impfstoff wurde über die Augen—bzw. Naseneintauchmethode verabreicht. Die Impfstoffmenge belief sich immer auf eine halbe Hennenosis je Tier. 4 Wochen nach der Impfung wurden einige der Tiere mit einem starken, krankheitsregenden IB-Virus (Feldgattung) zwecks Feststellung der Immunitätslage herausgefordert. Es zeigte sich, dass sich 4 Wochen nach der Impfung am 1., 15. bzw. 20. Tag ein guter Immunschutz ausgebildet hatte.

Der früheste Zeitpunkt, an dem

sich nach der Impfung am ersten Tag guter Immunschutz ausgebildet hatte, lag beim Alter von 3 Wochen. Die Impfung am ersten Tag dürfte deshalb von der 3. Woche an guten Schutz bieten, der in jedem Fall bis zur ca. 7. Lebenswoche vorhalten wird.

Für praktische Anwendung ist die Augen—und Nasentropf-Impfmethode in der Tat zu arbeitsaufwendig und weniger geeignet. Aus diesem Grunde musste eine akzeptable Alternative gesucht werden. Gegenwärtig wurde diese Alternative mit dem ASL Landspray gefunden. Dieses Spray erzeugt über eine Düse auch grössere Tropfen. Am besten ist es, die Küken noch in den Transportkästen zu impfen.

Bei unseren Tests haben wir konstant mit dem H120 Impfstoff aller in unserem Land bekannten Marken gearbeitet. Ohne Rücksicht auf die Impfstoffmarke waren die Resultate so, dass man der Impfung am ersten Lebenstag mit allen bekannten Impfstoffen gute Schutzwirkung beschleunigen kann.

Vaccinazione contro la bronchite infettiva nei polli da carne

Riassunto—Il problema di malattie respiratorie nel settore del macello avicolo è diventato molto grande. Una delle malattie che appartiene a questo gruppo è la bronchite infettiva (BI). Problemi respiratori sopravvennero specialmente tra la terza e la quarta settimana e persistono spesso durante tutto il periodo d'allevamento.

In molti casi il primo accusato è la

The tests discussed above have been carried out with the eye and nose drop vaccination. This is really completely different from the usual spray and drinking water vaccinations. In the case of the eye and nose drop vaccinations all the vaccine reaches the place of destruction immediately, that is to say the eye and nose mucous membranes.

With the spray vaccination (fine mist aerosol) a great deal of the virus (vaccine) is lost; it does not reach the chickens' respiratory systems but falls on the down. The high temperature of the pen works disadvantageously with the spray vaccinations as well. The IB virus is very sensitive to this. The virus content in the IB vaccine is much lower compared with the ND vaccine, which leads one to consider the IB aerosol spray vaccination as less suitable under the normal circumstances.

The drinking water vaccinations have disadvantages too. First of all the method is laborious, while it is doubtful that sufficient virus reaches the right place (eye and nose mucous membranes). It was proven with the test carried out by us, that the result of the protection through drinking water vaccination was clearly far less than that of the eye and nose drop vaccination.

For practical use the eye and nose



Mono-flo. The economical poultry drinker.

Economical. Because Mono-Flo will increase your operating efficiency. These clean, reliable drinkers are robustly constructed, there are no parts to service and Mono-Flo will never rust or corrode. As a result, you'll minimise wastage and vice and eliminate labour costs.

Every Mono-Flo drinker is individually tested and carries our comprehensive 10 year guarantee against mechanical defects. Mono-Flo. Used in successful poultry units the world over. Mono-Flo Mk 4—nylon body, single stainless steel insert. Mono-Flo Mk 3H—nylon body, stainless steel inserts. Mono-Flo Mk 2—all stainless steel. Contact your local merchant or supplier now or write direct to:

Mono-flo Nipple Drinkers Ltd.

Green Mount, Hanson Lane, Halifax, West Yorkshire HX1 5NH, England. Telephone: Halifax 65936. Telex 517389

London Office: Messrs. Bradley & Burch (Wire Components) Ltd., Sabian House, 26/27 Cowcross Street, London EC1M 6DQ, England. Tel: London 283 2651.

ask for Parent-stocks Hatching eggs Day old poults

from Betina
The French Breeder in Turkey

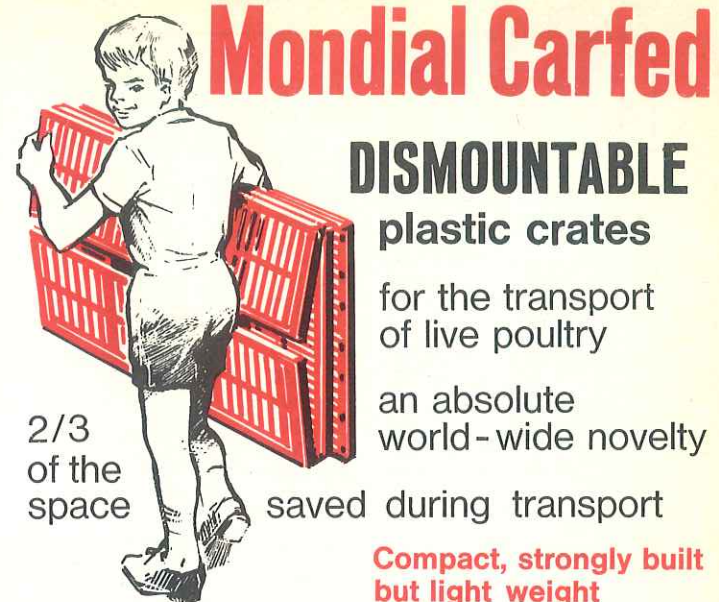
Two hybrid strains:

- BETIBOUL medium-type: the turkey for the industry.
- BETINA "Old Style" farmer-type: black or white-feathered. Natural mating.

The most profitable turkey for the hatchery.

Write or Telex for inquiries to:

BETINA
Service 230
56250 ELVEN
FRANCE
Telex: 740 230
Tel.: (97) 54.01.07



Mondial Carfed

DISMOUNTABLE plastic crates

for the transport of live poultry

an absolute world-wide novelty

saved during transport

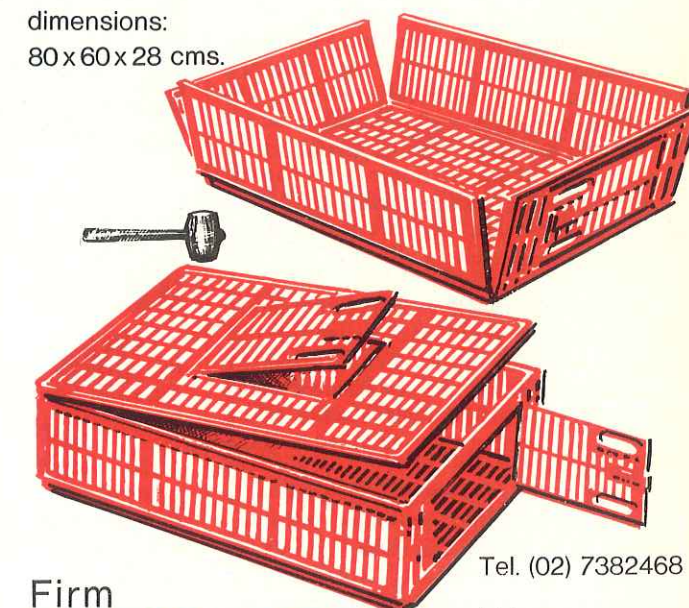
Compact, strongly built but light weight

2/3 of the space

Completely without metallic points or rivets thanks to its patented system **Mondial crates** can be mounted in less than 1 minute.

Available either with perforated or solid bottom.

dimensions:
80x60x28 cms.



Firm
FEDERICO CARAVITA

Tel. (02) 7382468

Telegrams:
Caravita - Milano

20137 Milano (Italy) Via C. Lombroso N. 32

POULTRY INTERNATIONAL is published monthly with features summarized in German, French, Italian and Spanish. Launched in 1962, Poultry International serves the commercial poultry interests at the management level in Europe, Asia, Africa, and Oceania. Distribution is world-wide outside the Americas and all recipients claimed as part of its qualified audience must meet strict requirements of industry involvement.

Table 1:

Summary of data of 10 batches of chickens for slaughter, vaccinated with IB-H120 on the first day.

Batch	Number	Fallout	Fallout Percentage	Rejects in Percentage	Number of Days	Average Weight in gms	Food Conversion
1	9 500	235	2.47	0	49	1532	2.05
2	6 500	147	2.26	0	49	1532	2.05
3	20 000	390	1.95	0.6	47	1458	1.96
4	19 300	318	1.65	0	52	1592	1.94
5	31 000	712	2.30	0	44	1400	1.91
6	16 000	258	1.61	0	46	1386	1.94
7	40 000	1303	3.26	0	45	1358	1.84
8	35 000	607	1.74	0	45	1384	1.78
9	21 000	545	2.59	0	45	1432	1.97
10	14 000	925	6.61	1	46	1306	2.08

drop vaccination is really too laborious and less suitable. Therefore we had to seek an acceptable alternative. For the moment this has been found in the ASL handspray. This is a spray with such a nozzle that larger drops can be produced. It is best to vaccinate the chicken in the chicken-boxes. The chickens are close together, by which, if the ASL spray is well directed little vaccine will be lost.

To cause a fine mist (aerosol) with this vaccination is therefore not recommended. It is desirable, however, to direct the virus as well as possible, on to the eye and nose mucous membranes. Extensive laboratory research has shown that the large particle method of vaccination approaches the eye and nose drop method relatively well and can be carried out in practice.

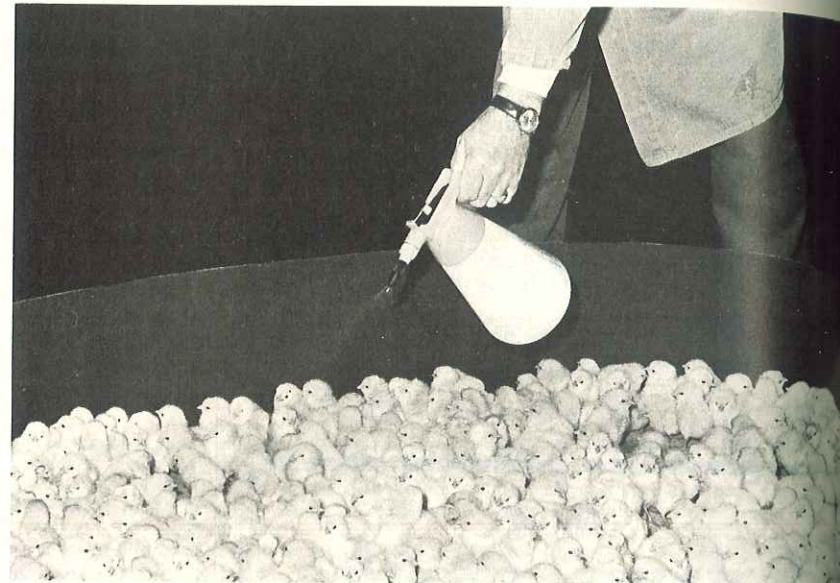
In our tests we have worked constantly with the H120 vaccine of all the known brands in our country. Regardless of the brand, the results were such, that it can be said that all vaccines, when used on the first day, obtained a good protection.

In the case of chickens without or with very few maternal antibodies, this mild strain can still be too strong and cause clear clinical symptoms. Not always is this vaccination completely harmless. In the same way, stronger vaccine strains can lead to undesirably strong vaccine reactions with chickens with normal maternal immunity.

It is known that the H120 vaccines offer good protection against most IB variants, so that in the case of different IB strains, which could cause problems, one need not be so concerned.

On account of the data discussed above, practical tests have been carried out in co-operation with the Provincial Health Services and after contact with practising veterinary surgeons. Fifteen farms with recurring respiratory problems were chosen for this purpose.

Vaccination took place on the first day of arrival, when the chicks were still in the boxes. The vaccination was carried out with the ASL handspray, with a



Poultrymen found it more practical to spray the chicks in their brooder surrounds and the delivery driver does not have to wait for the empty boxes. (Photo by courtesy of Stikting Gezondheidsdienst voor Pluimvee).

H120 vaccine of Intervet, Philips Duphar of the De Zeeuw Laboratories. During the fattening period the batches were visited regularly to follow the developments. At the end, figures concerning fallout, food conversion etc were collated.

In Table 1, the figures of ten batches are shown. In comparing with preceding results on those farms, it has to be said that previously the fallout and rejects together amounted to about 6 to 10% in most farms.

The results of the batches mentioned, apart from batch 10, can be called good. Clear improvement has taken place with regard to previous batches. It was very striking that around the 4th week some of the batches had breathing noises. These sounds, though, were not accompanied by increase in death, or a delay in growth and could be fought with a furazone cure in about 10 days.

Nearly always an *E. Coli* infection occurred at the same time as the invasion of an IB field virus. In retrospect, it

was shown from the high titres with respect to IB of these batches at the end of the fattening period. An exception was batch 10. In spite of treatment, the death toll was high. Finally it became clear that this batch was CRD contaminated. The problems in connection with this batch were sufficiently explained with this.

Two batches, which are not mentioned here, gave problems as well. It seemed that the chickens had had a Gumboro-infection. A few batches of the mother hens of these chickens, had not had antibodies against Gumboro, through which the young chickens were totally sensitive and why the results of the Gumboro infection hit harder.

In practice not all respiratory problems will belong to the past with the use of this vaccination, but problems which are caused by IB will be greatly reduced. According to the practice tests with the first-day IB vaccination, the farm results can be clearly improved in many cases.

LUBING:



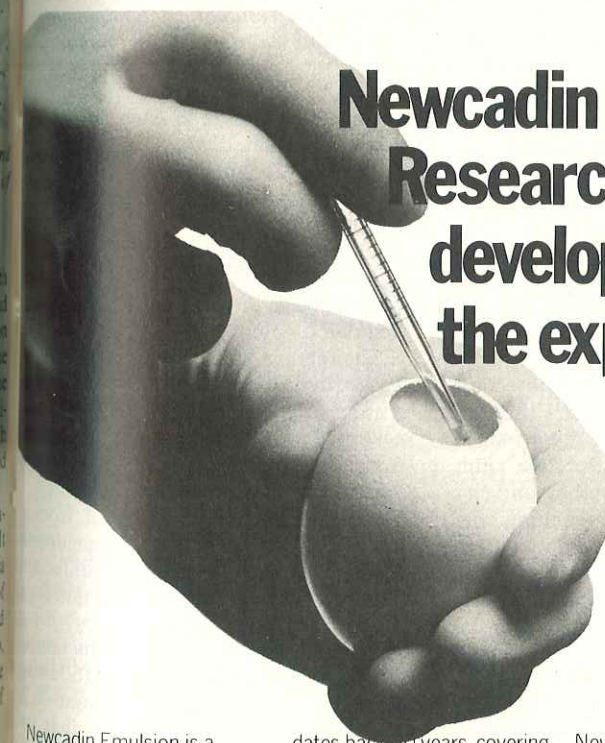
NIPPLE DRINKERS of stainless steel

for layers, chickens and rabbits

THE RELIABLE WATER SOURCE FOR YOUR ANIMALS

LUBING Maschinenfabrik D-2847 Barnstorf, Postf. 110, Tel. (0 54 42) 625

Newcadin Emulsion. Researched and developed by the experts.



Newcadin Emulsion is a completely proven way to produce prolonged and high level immunity against Newcastle Disease. It was developed by Evans' research teams, and Evans' medical and veterinary experience

dates back 50 years, covering much of the world. Newcadin Emulsion combines maximum safety with optimum efficiency, providing a very high degree of protection and can be administered from day old to point of lay.

Newcadin is the only all-British inactivated vaccine against Fowl Pest. Leave nothing to chance—your birds are in very good hands with Newcadin Emulsion.

Evans

EVANS MEDICAL LTD., SPEKE, LIVERPOOL L24 9JD, ENGLAND. Tel: 051-486 1881. Telex: 628668.

Always in the lead

We don't pretend to work miracles or to be know-alls. Through the years, however, we have gained an enviable reputation in the battery cage field worldwide.

This is not only because our battery cages last so long but also because we offer you every time the best system to suit your farm. With perfect rearing, laying, UNI-pack, breeding and broiler cages, plus help and advice, you get guaranteed success.

We did not become leaders in the battery cage industry just by luck.



Meller Batterien Joh. Kreyer
Postfach 68 · D-4520 Melle 1
Fernruf 054 22 - 56 08 / 36 99
Telex 9 41542