

Developing Countries



Two girl trainees in the region of the Upper Volta demonstrate the RIR cockerel supplied to upgrade local stock, and the result of mating it to one of the native breeds.

• Flexibility is needed in applying any poultry improvement scheme in developing countries, because no two countries are alike in their mode or stage of development. If poultry improvement is considered on a farm rather than a country basis, three categories can be recognised; the subsistence farm, the smallholding and the large enterprise. Each category requires a different approach.

The simplest method of improvement is a short-term programme to upgrade

the local stock. During the second world war, an extensive programme for upgrading the local hen in the Arab villages in Palestine made use of semi-heavy cocks bred at the Acre station.

Similar plans were implemented with varying degrees of success in several African countries under the name "Operation coq," and in certain parts of India in 1958 to upgrade the Desi breed. It seems that much experience has been gained in India since then, and several amendments to this programme were

made by FAO poultry production consultants.

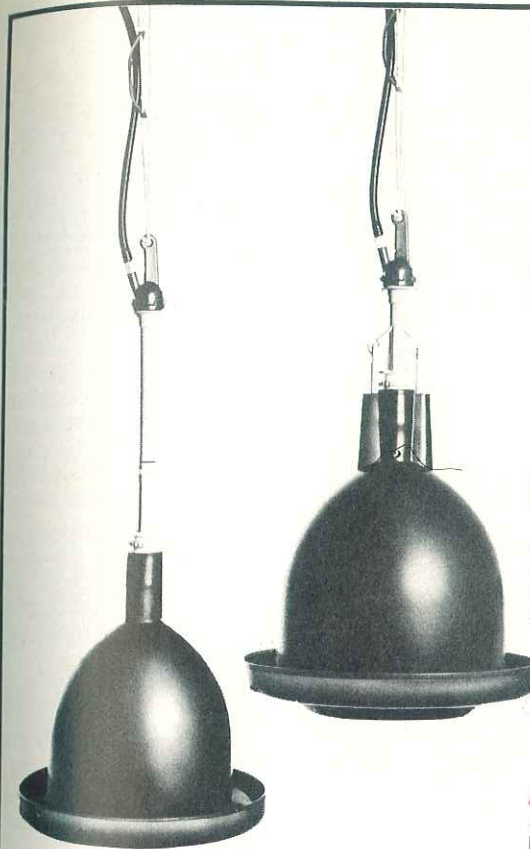
The following observations may nevertheless be relevant:

1. Regarding the breed used to upgrade the local stock, wherever possible preliminary crossing experiments or trials are advisable. British experts used to praise the Rhode Island Red as being the best for upgrading indigenous breeds of poultry. An experiment initiated and carried out under the supervision of the author on various breed crosses seemed

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PLASTIC PRODUCTS (1972)

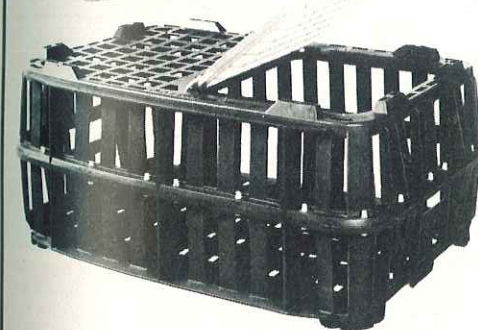
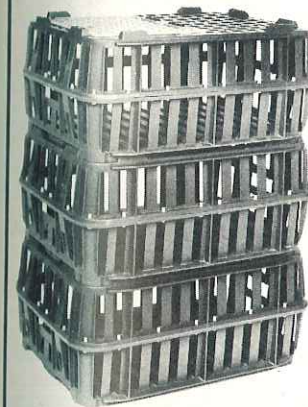
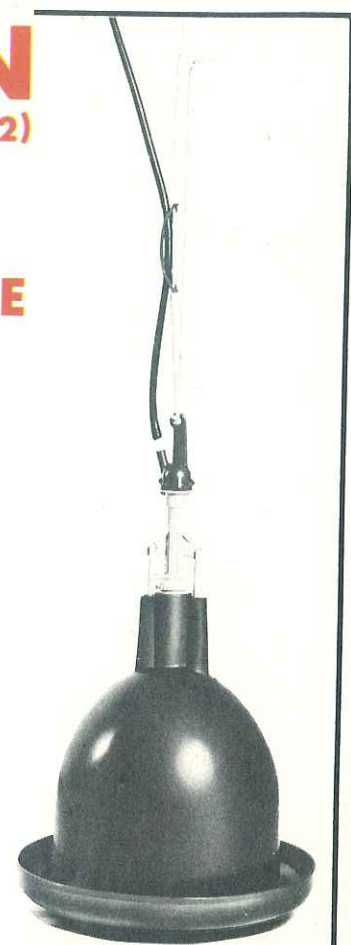
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Egg producers in the African Republic of Chad have been helped to improve their stock and their management by Swiss government finance and know-how.

Países en Desarrollo

Resumen—Se requiere flexibilidad en la aplicación de cualquier plan de mejoramiento avícola en países en desarrollo porque no hay dos países iguales en su modalidad o escala de desarrollo. El método más simple de mejoramiento es un programa a corto plazo para mejorar el pie de cría local. Se hace esto triando todos los gallipolos de la raza local y reemplazándolos con machos de alto rendimiento criados en Europa o en EE.UU.

Se implementó este plan con un grado variado de éxito en varios países y en ciertas partes de India en 1958, para mejorar la raza Desi. Es aparente que desde entonces se ha ganado mucho en experiencia mucho en la India, y los consultores de producción aviar de FAO introdujeron varias enmiendas en este programa.

No obstante, las siguientes observaciones podrían ser relevantes:

1. Respecto a la raza usada para mejorar el pie de cría local, donde quiera sea posible se recomienda hacer experimentos preliminares de cruce.

2. Un paso esencial es de retirar todos los gallipolos locales de la aldea cuando se depositan los machos mejores para mejorar la estirpe al comienzo de la temporada de cría.

3. El uso de prueba de demostración, donde se incluyan las aves de la raza mejorada o de la primera cruce con las gallinas indígenas, es de importancia vital.

4. En todos los casos la manada debería ser verificada por un veterinario, quien debería también vacunar

las aves importadas y las mejoradas contra el Newcastle.

Donde esté bastante avanzado el desarrollo, se podrían establecer grandes empresas comerciales para satisfacer la mayou de huevos y carne de ave. La selección entre pie de cría comercial y abuelo de un centro de cría avanzado para el suministro de pollitos de un día o huevos para incubar, depende de la etapa de desarrollo de la cría aviar en el país, así como también de consideraciones económicas. Se presenta el interrogante si se debería estimular el trabajo de cría básico en una escala regional o nacional en los países en desarrollo.

Aunque las importaciones continuas de material para cría (aves abuelas) de empresas aviarias importantes de Europa y Norteamérica han contribuido considerablemente a mejorar el nivel de producción aviar en los países en desarrollo, han sido no obstante un drenaje constants sobre las divisas extranjeras.

Entwicklungsländer

Zusammenfassung—Flexibilität ist erforderlich, wenn ein System der Geflügelveredelung, egal welches, in Entwicklungsländer übertragen werden soll, weil es nicht einmal zwei Länder gibt, die hinsichtlich des Entwicklungsstadiums und der äusseren Betriebsumstände einander völlig gleichen. Die einfachste Verbesserungsmethode besteht in einem Kurzzeitprogramm, mit dessen Hilfe örtlich vorhandenes Tiermaterial verbessert wird. Dies wird so in die Tat umgesetzt, dass alle Hähne der örtlichen Rassen abgeschlachtet und durch Zuchthähne aus Hochleis-

tungsrasen, in Europa oder den USA gezüchtet, ersetzt werden.

Dieser Plan wurde mit verschiedenartigem Erfolg in verschiedenen Ländern eingesetzt, so auch in einigen Landesteilen Indiens, als 1958 die Desi-Rasse züchterisch verbessert wurde. Offensichtlich hat man seither in Indien sehr viele Erfahrungen sammeln können, und dieses Programm wurde durch die Geflügelproduktionsberater der FAO in verschiedenen Punkten aktualisiert oder ergänzt.

Folgende Beobachtungen dürften nichtsdestoweniger auch heute Relevanz besitzen:

1. Was die zur Aufbesserung örtlich vorhandener Rassen einzusetzende Zuchtrasse anbetrifft, sollten, wo immer möglich, vorherige Kreuzungsversuche durchgeführt werden.

2. Wenn zu Beginn der Paarungszeit Hähne der verbesserten Rasse eingesetzt werden, ist es eine unabhängige Voraussetzung, dass alle Hähne der am Ort vorhandenen Rasse vorher gekeult werden.

3. Demonstrationsversuche, wobei Vergleiche zwischen den Tieren der verbesserten Rasse oder den Erstkreuzungsprodukten aus Hennen der einheimischen und Hähnen der eingeführten Rasse miteinander verglichen werden, sind von allergrösster Wichtigkeit.

4. In jedem Fall ist der Bestand von einem Tierarzt zu untersuchen, der die importierten wie auch die zuchtwertmässig verbesserten einheimischen Tiere gegen die Newcastle-Krankheit impft.

Wenn das Entwicklungsstadium schon weit fortgeschritten ist, können grosse, gewerbliche Einheiten

to support their view, although what was considered to be a breed effect could have been a strain effect as well.

2. An essential step is to remove all local cockerels from the village when putting in the improved cocks for upgrading at the onset of the breeding season.

3. The use of demonstration trials, where the birds of the improved breed or of the first cross with the indigenous hens are cared for, is of vital importance. For many reasons, it is preferable that these trials be carried out near a school centre, where the flock could be cared for by the pupils under the supervision of a teacher and with the advice of a poultry instructor.

4. It is recommended that a small kerosene-heated table incubator be available on the spot.

5. In every case the flock should be checked by a veterinary surgeon, who should also vaccinate the imported and the upgraded stock against Newcastle disease.

With the growth of urban centres small poultry houses may be set up. For their primary feed, birds in these houses may be left to scratch and be fed offals, with small amounts of balanced additives to supplement their diet. Smallholders need:

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aufgebaut werden, die die sich steigende Nachfrage nach Eiern und Geflügelfleisch decken. Ob gewerbliches Endproduktmaterial oder ob Grosselterniere eines technisch hochentwickelten Zuchtzentrums für die Produktion von Eintagsküken bzw. Bruteiern herangezogen werden, hängt vom Entwicklungsstadium der Geflügelzucht im betreffenden Land und von ökonomischen Erwägungen ab. Hierbei taucht die Frage auf, ob Basiszuchtarbeit in Entwicklungsländern auf regionaler oder nationaler Basis forciert werden sollte.

Obschon kontinuierliche Importe von Zuchtmaterial (Grosselterniere) von grossen Geflügelzuchtunternehmen in Europa und Nordamerika einen erheblichen Beitrag zum Leistungsniveau der Geflügelhaltungen in Entwicklungsländern geleistet haben, bedeuten diese Importe dennoch einen konstanten Devisenabfluss.

Pays En Voie De Développement

Sommaire—Il faut de la souplesse pour appliquer un schéma d'amélioration de l'industrie avicole dans les pays en voie de développement car il n'y en a pas deux de semblables dans leur mode ou leur état de développement. La méthode la plus simple d'amélioration est un programme à court terme d'amélioration du cheptel local. On y arrive en réformant tous les jeunes coqs des races locales et en les remplaçant par des mâles à performances élevées venant d'Europe ou des U.S.A.

Ce plan a été mis en place avec des succès divers dans plusieurs (S.V.P. voir page suivante)

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A modern slatted floor house in the Philippines stocked with pullets supplied by a leading international breeder based in the USA.



Several farmers in Basutoland have seized the opportunity, made possible with FAO assistance, to adopt modern methods of housing, like cages, but labour is so cheap that no mechanisation is necessary.

pays et dans certaines parties de l'Inde en 1958 pour améliorer la race Desi. Il semble que depuis lors, on ait beaucoup profité de l'expérience indienne et que les consultants de production avicole de la FAO aient ainsi pu modifier plusieurs points du programme.

Les observations suivantes peuvent néanmoins être intéressantes.

1. Quelle que soit la souche utilisée pour améliorer le cheptel local, il est souhaitable de commencer par des croisements expérimentaux.

2. Une étape essentielle est le retrait de tous les coqs du village quand on place les coqs améliorés, au début de la saison de reproduction.

3. Il est d'une importance vitale de faire des démonstrations expérimentales là où on s'occupe des bêtes de la race améliorée ou du premier croisement avec les poules locales.

4. Le troupeau doit toujours être suivi par un vétérinaire qui devra toujours vacciner les bêtes importées et améliorées contre la maladie de Newcastle.

Quand on aura réalisé des progrès suffisants on pourra établir des entreprises commerciales importantes qui répondront à la demande accrue en

oeufs et viande de volailles. Le choix entre une souche commerciale et grandparentale venant d'un centre de sélection moderne pour la fourniture de poussins d'un jour ou d'oeufs à couver dépend de l'état de développement de la sélection avicole dans le pays aussi bien que de considérations économiques. Une question qui se pose est de savoir s'il faut encourager un travail de base sur la sélection à une échelle régionale ou nationale dans les pays en voie de développement.

Bien que les importations continues de reproducteurs (souche grandparentale) venant des grandes sociétés avicoles européennes et nord-américaines aient contribué pour beaucoup au niveau de production avicole des pays en voie de développement, elles ont par contre utilisé de nombreuses devises étrangères.

Paesi del Terzo Mondo

Riassunto—Nei Paesi in fase di sviluppo è necessaria la flessibilità, per applicare uno schema di miglioramento dell'avicoltura, perché non vi sono due paesi uguali nella

maniera e nel livello di sviluppo. Il modo più semplice per migliorare la qualità delle razze locali consiste in un programma a corta scadenza. Questo avviene tramite la selezione di tutti i maschi riproduttori locali, sostituendoli con maschi di alta produttività, selezionati in Europa o negli Stati Uniti.

Questo progetto è stato realizzato nel 1958, con successo variabile, in parecchi paesi e in certe parti dell'India, per migliorare la razza Desi. Sembra che da allora si abbia acquistata una grande esperienza nell'India e che siano stati fatti parecchi cambiamenti a questo programma, da consulenti della FAO per la produzione avicola.

Le seguenti osservazioni sono, tuttavia, rilevanti:

1. Per quel che riguarda i ceppi necessari per migliorare la razza locale, dove sia consigliabile fare eventuali esperimenti con incroci e prove.

2. Un passo importante da prendere è togliere tutti i maschi locali del paese al momento di mettere i maschi selezionati all'inizio della stagione di selezione.

3. E' molto importante fare prove con soggetti della razza selezionata o

- A normal supply of concentrates.
- A well-organised market for eggs and culled hens.
- Some form of co-operation among the smallholders, sponsored by the government.
- An improved crossbred laying hen.

The raising of broilers is a large proposition and is not to be recommended for smallholders.

Where development is well advanced, large commercial enterprises may be established to meet the increased demand for eggs and poultry meat. The choice between commercial and grandparent stock from an advanced breeding centre for the supply of day-old chicks or hatching eggs depends on the stage of development of poultry breeding in the country, as well as on economic considerations. A question that arises is whether basic breeding work should be encouraged on a regional or national scale in developing countries.

Although continuous imports of breeding material (grandparent stock) from large poultry enterprises in Europe and North America have contributed considerably to the level of poultry production in the developing countries, they have nevertheless been a constant drain on foreign exchange. This could well lead to national or regional breeding programmes based on gene pools from imported strains.

However, the running of large-scale poultry breeding enterprises involves a whole array of new administrative and planning procedures—extending all the way from the basic supply of hatching eggs from the parent stock through to the hatcheries—to avoid shortages and over-production. It also calls for the construction of large stores to ensure a

del primo incrocio con i soggetti locali.

4. In ogni caso i soggetti devono essere controllati da un veterinario, che deve anche vaccinare i soggetti importati e migliorati, contro la malattia di Newcastle.

Dove lo sviluppo è ben avanzato, si creano grandi aziende commerciali per soddisfare la richiesta aumentata di uova e carne di pollo. La scelta tra razze commerciali o grandparentali provenienti da un centro di selezione moderno per l'approvvigionamento di pulcini di un giorno o uova incubabili, dipende dal livello di sviluppo della selezione avicola nel paese e anche dalla situazione economica. Una questione che sorge è se bisogna incoraggiare il lavoro di selezione elementare su base regionale o nazionale nei paesi in fase di sviluppo.

Benché importazioni continue di materiale di selezione (ceppi grandparentali) provenienti da grandi aziende avicole dell'Europa e dell'America del Nord, abbiano contribuito considerevolmente alla produzione avicola nei paesi in fase di sviluppo, tuttavia, un esaurimento costante delle valute estere.



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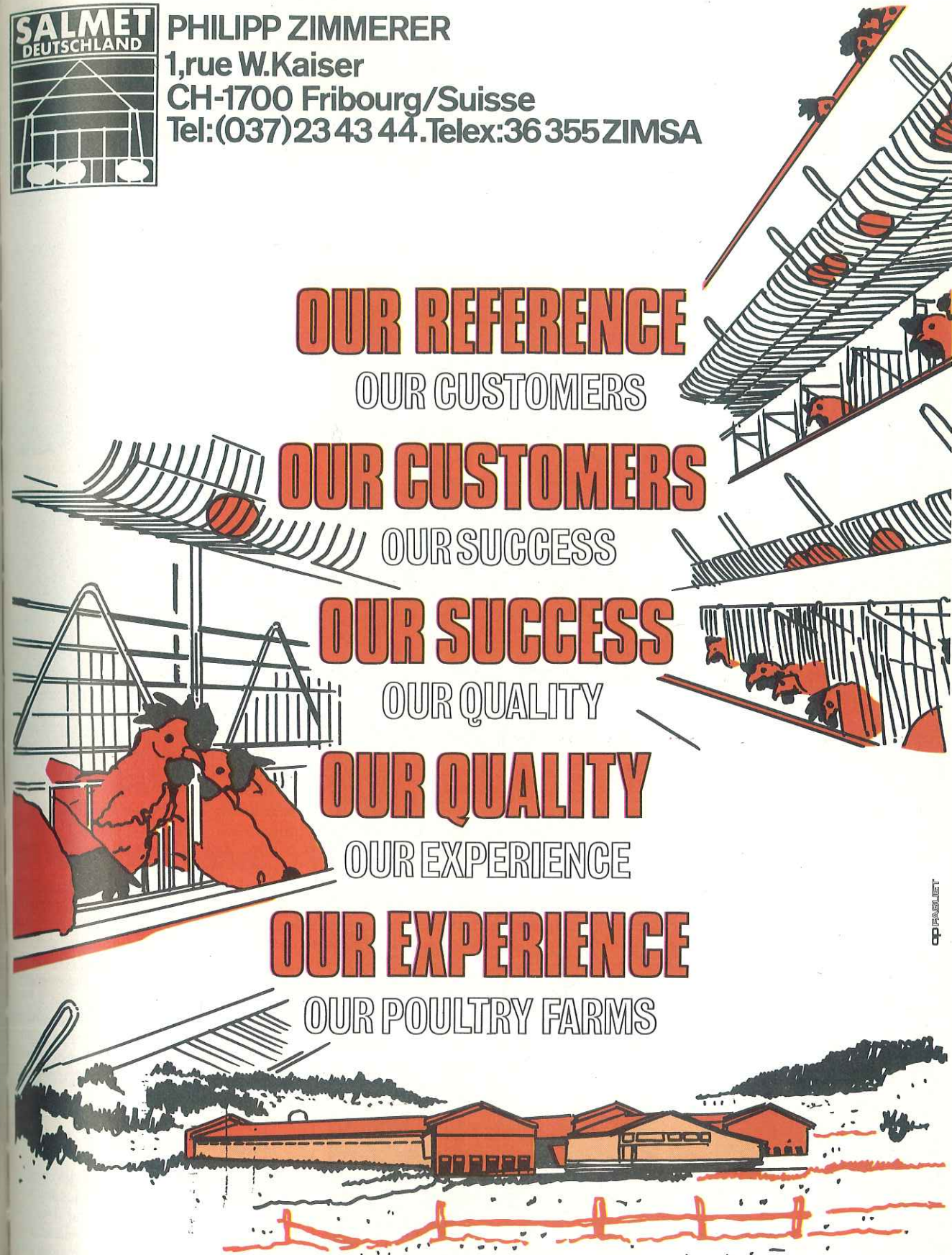
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regular supply of well-balanced feed, the adoption of strict disease control measures, and the development of an adequate marketing infrastructure. Administrative and technical personnel of a high calibre would be necessary.

Training courses are therefore of primary importance and attention should be given to developing the initiative of the personnel. In the courses on poultry production conducted in Israel for students from developing countries, much emphasis is given to practical experiments.

Small experimental units were built for this purpose, in which the students plan and conduct their own trials, which are mostly concerned with poultry feeding. They are required to care for the chicks under experiment, check the results and draw conclusions. This is a way of awakening their interest and curiosity, and attracting their attention to changes that can be brought about in the development of a poultry industry.

The development of the poultry industry in Israel since 1948 offers a base for the establishment of similar improve-

ment schemes in other countries. The necessary advice and assistance can come from the joint efforts of government and educational institutions in the country concerned, using well-organised poultry extension and veterinary services, and also from bilateral and multi-lateral agencies. Since the poultry industry represents a relatively inexpensive way of supplying animal protein to the human population, efforts to promote the industry in developing countries should receive high priority.

—M. Taran

New Single Cell Protein For Poultry

One of Western Europe's three largest chemical companies, Imperial Chemical Industries Limited, has introduced a new protein source for feeding to poultry and other farm stock. Called Pruteen, it is a single-cell protein produced by growing micro-organisms by fermentation in an aqueous medium containing small amounts of nutrients.

Its crude protein level is put at 80% of drymatter, with 4.9% lysine and 1.8% methionine. It also is a source of energy, vitamins and minerals.

In trials at Celle, West Germany, Pruteen was compared with soybean meal in diets for Lohmann broilers. Three levels of the new protein were tried: 4%, 8% and 12%.

During the 50-day trial period, the chicks fed 4% and 8% Pruteen gained weight at the same rate as those fed the control diet. However, they showed an improvement in feed conversion of 2.9% and 5.4%, respectively. In other experiments at Munich, West Germany, Pruteen inclusion in broiler diets gave satisfactory feed intake, growth and feed conversion when compared with a control diet of high-quality fish meal and soybean meal.

For layers, in trials at ICI's research station in England the partial replacement of soy protein by 25% and 50% Pruteen gave significant improvements in performance. Egg production increased by 6.3% and 4.0% respectively, and feed conversion by 6.7% and 5.7%.

A pilot plant in Scotland is producing 1000 tons a year of the new protein and ICI is planning a commercial plant capable of producing 100 000 tons per year.

Phosphorous For Hens

Feeding lower than usual levels (0.1 and 0.4%) of inorganic phosphorous over a 16-week period to Broad Breasted White turkey hens did not cause any significant differences in egg production fertility or hatchability of fertile eggs, reported T.M. Ferguson from the Texas A & M University, USA.

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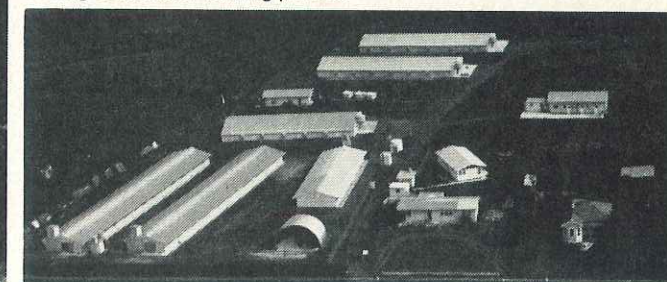
A Japanese crew conducts 7 week selection



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A major grandparent unit near Shizuoka, Japan



An aerial view of Shaver (N.Z.) Tuakau, New Zealand

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