FARMSTOCK

STOCKBREEDERS' & FARMERS' MONTHLY

NEWS, SALES & ADVISORY SERVICE ON ● LIVESTOCK ● POULTRY, ● FISHING ● HORTICULTURE ● FARMING & ● FOODSTUFFS ETC.

NEW BRITISH BROWN-EGGER

Cambroady, food convertion excellent, low mortality.....see p 5

JULY '6

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CONTEN

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CROP SPRAYER FOR FOUR WHEEL DRIVE TRACTOR HAS HIGH VOLUME

MOST types of liquids, including wettable powders, can be handled by a new high-volume crop sprayer developed by a British firm.

Designed specifically for a new British four-wheel drive tractor, the sprayer uses a diaphragm-type pump unit, powered by the tractor power take off, having an output of 14.3 gal./min. (65 litre/min.) at 500 rev./min., giving an application rate of up to 90 gal./acre (1022 litre/hectare).

The sprayer has a mild steel galvanised 210 gal. (955 litre) capacity tank carried on the tractor's rear platform. It is supplied with 33 ft. (10m) wide booms, designed to fit the front or rear of the tractor, which fold within the tractor's width for transport.

The sprayer pump can also be used as a high pressure washer by simply adding an attachment. In addition, a hand lance is available for high pressure spraying. Maximum output is 426.7 lbf/in^2 (30 kgf/cm^2).

The sprayer is supplied as standard with a 25 gal./min. (114 litre/min) self-filling injector-type attachment complete with weighted strainer. Controls are located in the tractor cab and comprise a synchromatic unit which gives finger-tip control for pressure regulation, boom selection for single or double sided work, and suction filling. A pressure gauge is built into the control unit.

Incorporated in the nozzle holders are special spring-loaded anti-drip units which prevent dripping when the main control is switched to the 'off' position. The pressure in the line is relieved and the extra spray is returned to the tank.

With the front mounted booms, the operator has a clear view of the spraying width. If the tractor hits an obstacle, the booms swing back and then return to the spraying position.

(E. Allman and Co. Ltd., Birdham Road, Chichester, Sussex, England, tractor is the Forward Control 1004 County made by County Commercial Cars Ltd., Fleet, Hampshire, England).

AUTOMATIC ENVIRONMENTAL CONTROL FOR LIVESTOCK HOUSING

COMPLETELY automatic control of heating, lighting and ventilation in livestock housing of up to 45 ft. by 400 ft. (13.7m to 122m) in size is claimed by the manufacturer of a new solid-state control panel.

The panel can control up to twenty-six 18-in. (457-mm) or twenty 24-in. (609-mm) fans to within any limit between 10 per cent and maximum. The control is interlocked to a blow-air heating system giving accurate environmental control, normally using one sensing probe to each section of the house.

Light dimming in the range 1500 W to 12000 W can be either manual or automatic. Over-riding thermostats for double-ended houses eliminate over-heating of one section if the temperature falls sharply at the other end.

There is also an electronic heater switch interlock for blown-air heating controlled by the same sensing device as the fans. This ensures that the heater cannot be switched on while the fans are running fast. A heater balance device controls the ventilation-heat ratio.

(Maywick Appliances Limited, Wickford, Essex, England; Maywick-Holloway panel Model HLV. Price dependent on range of control desired.)

New Equipment

ULTRA-LIGHTWEIGHT BALL AND ROLLER UNITS EASE PALLETISED LOADS

Claimed to be an advance in the handing of pallets in air freighters, vehicles, and freight containers, a new ultra-lightweight system of ball and roller units has been developed by a British firm.

Apart from the manoeuvrability of the pallets, the system results in a high-capacity/low-weight ratio, which has been achieved by encasing the ball units in a patented acetal copolymer housing fitted with a high precision machined-steel ball seating. Units weighing 5½ oz. (145 g.) have a load capacity of 150 lb. (68 kg.) and 4¼ oz. (121 g.) rollers can support 300 lb. (136 kg.) per roller.

The firm says that the seatings are more efficient than pressings hitherto employed and enable one operator to push a two-ton load and two men to push loads up to 10,000 lb. (4536 kg).

The ball and roller units are free from corrosion, resistant to most acids and alkalis, can easily be stripped for maintenance, and have a long working life They can easily be fitted to and removed from any type of general purpose vehicle.

FERTILIZER DISTRIBUTOR HAS ALL-SEASONS APPLICATION

A NEW power driven bulk fertilizer distributor made by a British firm can be converted easily into a grain transporting trailer with either auger or gatetype unloading, thus providing a versatile tool with all-seasons application. It has a capac of 72 ft^3 (2.04 m^3) with effective spreading width 32 ft (9.8 m).

The hopper is divided i two parts, the forward p being tipped hydraulically the tractor driver to ke the rear end replenished.

The rear portion met the fertiliser on to a rotati disc, which has three adj table vanes each of whi can be set in four positio for uniform spreading. T rate of spreading is set on adjusting scale whichaw seven positions eachih four sub-divisions.

Side extension convert t distributor into a grain trai with a capacity of 140 f (4 m^3) to hold approximate 3 tons. A grain gate, capab of emptying the full load b gravity into a hopper in 5 seconds, can be fitted.

A grain auger can b substituted for the grain ga so that controlled unloadin can take place into transpor trailers and trucks. This en ables the grain version to b used as the main transpor for combine harvesting, eithe to receive direct from th combine and unload into bins at the buildings, or to be the main receiver from the combines in the field, filling the trucks as they arrive.

Where big seed drills are employed or multi-drilling operations are in progress the unit could be used to speed and simplify seed hop per filling in the field.

The distributor is 11 ft. 2 in. (3.4 m) long and 5 ft. 4 in (1.63 m) wide. Total weight with the spreader mechanism is1279 lb. (580 kg).

Hopper width is 5 ft. 1 in (1.55 m) and the length 7 ft 10 in. (2.4 m). Auger discharge height is 8 ft. 6 in. (2.6 m).

Application rate is 112 to 1120 lb./acre (127 to1270 kg hectare.

International Harvester Co of Great Britain, 259 Cen Road, London.

MONTHLY ADVISORY SERIES

PREPARING FOR THE RAIN SEASON (1)

NOW THAT THE RAINY SEASON IS AGAIN ON POULTRY FARMERS SHOULD BE THINKING OF THE PROBLEMS THEY HAD WITH THEIR BIRDS LAST RAINY SEASON, AND OF HOW TO AVOID THEM THIS TIME. DISEASE IS A PARTICULAR PROBLEM FOR THOSE WHO KEEP THEIR BIRDS N LITTER, WHETHER AS BROILERS OR FOR EGG PRODUCTION.

PRINCIPAL DISEASES

There are three principal diseases which can come from wet litter, Aspergillus, Coccidiosis, and Worms. The last two are complicated subjects and to discuss them would need at least one article each. So in this article I want to start by discussing Aspergillus, which is quite a simple disease to understand and to prevent, but which causes considerable losses in young chicks every year.

It is a disease which is quite easy to prevent, but impossible to cure, so now is the time to take action against it. Aspergillus is a fungus, or mould disease, which can only infect very young chickens. The Aspergillus fungus normally lives on all kinds of things which have nothing to do with chickens, such as in the soil and on decaying plants.

by

L. J. Elmslie M. A. (Cantab)

Specialising in Agriculture

Technical Director, Epnaka & Thornber Ltd.

Some are found in almost all lots of sawdust and woodshavings, especially during the rainy season. If the shavings or sawdust are even a little bit wet the fungus grows on the small pieces of wood, and also produces 'spores' which are the fungus equivalent of seeds, and float in the air mostly near the ground.

Both the fungus itself and its spores are too small to identify without a microscope but because it is almost certain that the fungus is present in even slightly damp shavings there is no real need to identify it.

Aspergillus causes disease when chicks breathe in spores which have come from fungus in the litter. The spore lands inside the bird's lungs and starts to grow. The bird's breathing is hindered, and after sometime it may stop growing, become thin, and perhaps die.

Not all the birds in an affected flock die. Five to ten percent would be an average figure, but for every bird which dies there will be two or three which have suffered the disease and will not do well in the rest of their lives because of the damage it has done.

There is no cure. If it is confirmed that the disease is Aspergillus there is no use in the farmer rushing to spend money on medicines which will not cure it.

SUSCEPTIBILITY

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BRITISH POULTRY SHOWN AT ITALIAN AGRIC FAIR

Cover picture shows the H7, a laying bird that was shown by its breeders at the International Agriculture and Animal Faming Fair being help at Verong recently. It reaches 4.3 lb. (1.95kg) at 20 weeks and produces a brown egg.

The strain is said to be conhsoody and to have a low mortality rate. It is lso said to lay better at the end of the cycle than most brown eggers.

The breeders also showed another laying bird, the H3, which reaches 4.05 lb (1.815 kg) at 20 weeks and lays tinted eggs, and the Piloh, a broiler, that reaches 4.5 lb (2.04 kg) in 63 days.

All three strains of poultry will thrive in most climates and already the birds are being bred in fifty different countries.

ADVERTISEMENT

TERRAMYCIN EGG FORMULA

Terramycin Egg Formula is the most potent antibiotic possessing the broad-spectrum Terramycin activity together with added Vitamins. These Vitamins are A, B_{12}, D_3, E, K, Riboflavin, Niacinamide, and Pantothenic acid.

Each of these Vitamins does specific and complementary work in the birds body to improve its health and to stimulate it to lay at least one extra egg a week throughout its laying circle.

WHAT THESE VITAMINS DO FOR THE BIRDS:

VITAMIN A: Essential for normal egg production, fertility an hatchability in breeders. Strengthens the body and skin, and reinforces the bird's resistance against diseases. Increased mortality, susceptibility to diseases, general weakness, and drop in egg production are deficiency symptoms.

VITAMIN D_3: Indispensable for proper Calcium and phosphorus metabolism, and hence bone and muscle development; promotes egg production and sound egg shell formation. Deficiency causes bone malformation, muceular weakness and paralysis.

VITAMIN E: Necessary for the normal functioning of the reproduction organs. It improves fertility and embryonic development (breeders). Deficiency causes poor egg production and reduces hatchability (breeders).

VITAMIN K: Prevents haemorrhagic diseases while deficiency result in failure of blood to clot.

VITAMIN B_{12} Promotes growth and reproduction. Stress should always be guarded against because it often triggers off disease outbreaks the causative

RIBOFLAVIN: Essential for high egg production, for development and health maintenance, and improved hatchability (breeders) reduced egg production, reduced vitality and 'curled' toes paralysis are deficiency symptoms.

NIACINAMIDE: Promotes growth and maintains health. Prevents perosis in birds.

PANTOTHENIC ACID: Essential for healthy nerves and growth.

BENEFITS OF USING TERRAMYCIN EGG FORMULA

1. REDUCES MORTALITY: The Vitamins mentioned above prevent nutritional diseases while the Terramycin suppresses most diseases causing organisms in the bird's body. One valuable pullet saved justifies the cost of buying one bottle of Terramycin Egg Formula.

2. OVERCOMES POINT OF LAY STRESS: At point of lay several physiological changes take place within the pullet to transform it into an "egg factory" capable of producing some 20 dozen eggs in a year. This change normally imposes a stress on the birds and mortality can be high. With judicious use of Terramycin Egg Formula these losses are averted.

3. INCREASES EGG PRODUCTION BY UP TO 37%:

The birds come into lay earlier, reach a peak production earlier and sustain production peak longer.

4. SUPPRESSES STRESSES: Prevents laying slumps during stress periods. organisms like like Viruses. Bacteria, Protozoa are present in latent form. Common stress factors are:

I Extremes in weather; too hot cold, wet or dry. Heavy. and violent storms also upset birds.

II Deworming; even the mildest acting worm drugs imposes a stress on the bird's system.

III Changes in feed or feeding methods are stress inducing factors. Any change such as from Mash to Pellets or vice versa must be gradual and not sudden to minimise the stress.

IV Vaccination; innoculation against - Newcastle Disease, Bronchitis etc. often aggravate C.R.D. especially where live virus has been used.

V Mass handling or movement also precipitates stress in birds.

VI Overcrowding; Insufficient feed troughs or waterers; and starvation are other factors which cause stress condition.

5. PROTECTION: Offers excellent protection against a large range of disease causing organisms like bacteria, certain protozoa and larger viruses.

6. EGG SHELL QUALITY: Improves egg shell strength because it contains adequate quantity of Vitamin D essential for Calcium metabolism in birds. Since calcium is the mineral composing egg shell, such abnormalities like:

Shell-less eggs
Thin and soft shells,

disappear.

7. REDUCES FEED COST: Terramycin Egg Formula greatly increases feed efficiency. With the same quantity of feed as was fed before, the birds lay extra larger eggs. The cost of producing each dozen egg is therefore reduced while profit margin is increased. The conversion of feed to eggs is increased by up to 18%.

8. FERTILITY FACTOR: Increased fertility, increased egg production while the proportion of fertile eggs in the breeding flock is accordingly increased.

9. HATCHABILITY INCREASES: Promotes hatchability in the breeder by suppressing embryonic mortality. Chick livability increases because the hatched chicksare healthier and more fortified to withstand the strains of the first few days after hatching.

WHEN AND HOW TO USE:

1. CONTINUOUSLY: Use continuously round the clock every day of the year if highest profits are to be made.

Dosage:- 1 Level teaspoonful to 8 gallons of water.

2. MASS HANDLING OPERATIONS: Debeaking innoculation are operations requiring handling of all birds. Start to use Terramycin egg Formula 3 days before the Operation and continue for 2 weeks after.

Dosage:- 1 Level teaspoonful to 1 & 1/2 gallons of water.

3. DISEASE PRESENCE: When there is a mild outbreak of disease in the area Terramycin Egg Formula should be used to maintain high egg production.

Dosage:- Use 1 Level teaspoonful to 1 & 1/2 gallons of

Continue on page 10

LETTERS

DIARY OF AGRIC EVENTS

Dear Sir,

THE BRAINS BEHIND FARMSTOCK DESERVE SOME BIG PAT ON THEIR SHOULDERS FOR THE GOOD SERVICE THE MEDIUM PROVIDES, BUT A LITTLE MORE CAN STILL BE DONE.

Personally, I think the price of sixpence is too small if the paper is not to be short-lived. Any paper of the standard of FARMSTOCK cannot sell for less than a shilling.

Truly, the sales of copies cannot offset the cost of production; but if a paper is too cheap, some may thereby slight it. Besides, improvements may be too expensive.

Please consider the publication of a monthly DIARY of agricultural events all over the country; this will help farmers and buyers as well. People on leave will know where to go for what.

Thanks for space allowed.

Jos. Isa Musadiq.

Editor's Nate.

I cannot agree with you less on all your points. Incidentally, the Farmstock is now a shilling after selling at 6d a copy for a whole years.

X X X

MARKETING SERVICE

Dear Sir,

In some previous issues of FARMSTOCK requests were made for a feature on the prices of farm products at their various centres of origin.

Since then nothing has been done to serve eager readers on this important aspect.

Ibadan Jubrila Hassan

Editor's Note:

It is a pity that arrangements are not complete, but we shall soon start.

BR'ER RABBIT

Dear Sir,

For some like me farming is at the moment an impossibility. I have but only as small space It may permanently be so for some time. But I want to do some business that I can nurse myself and turnto farming in future when I have more money.

I do not like poultry as I do not eat fowls myself. Can you make some suggestions ?

Akure Wale George

Editor's Note:

I am sure you will enjoy keeping rabbits. With a little capital and small space, you can make money easily. And the meat? Sweet and tender;; you will definitely like it. The skin is marketed If you are interested write for more particulars to FARMSTOCK (Rabbits) P. O. Box 79, EB.

BLOOD TEST

To ensure that birds attain and maintain their highest standard of performance either for, the table, as layers or breeders, tests and typing of blood are regularly carried out.

In this picture, a laboratory technician collects blood from a chicken.

The extracted blood is then certified as of the quality and quantity required before being injected into another bird to produce antibodies.

In this manner, British birds are able to command a high grade in comparative value against foreign breeds.

NEWS

TRACTOR HIRING UNIT STARTS OPERATION

THE TRACTOR HIRING UNIT OF THE AGRICULTURAL DIVISION OF THE NORTH WESTERN STATE MINISTRY OF NATURAL RESOURCES HAS STARTED OPERATIONS IN VARIOUS AGRICULTURAL DIVISIONS OF SOKOTO PROVINCE.

Disclosing this in his Office there recently the Agricultural Superintendent in charge of the Unit, Malam S. U. Dama said that the Unit offers services of tractors and other machineries for use by individuals after a payment of a fixed fee.

Malam Dama gave the following charges per acre of different types of land as the fee for the use of the machineries:-

Upland Areas

Ploughing	25/-	per acre
Disc Horrowing	21/-	„ „
Ridging	21/-	„ „
Ridge Splitting	32/-	„ „

Black Cotton Soil

Ploughing	40/-	„ „
Cultivating	32/6d	„ „
Ridging	32/6d	„ „

Fadama Soils

Ploughing	80/-	„ „
Disc Cultivation	39/-	„ „

He further disclosed that if more than one operation was carried out then the charge would be :-

Ploughing and ridging on upland 40/- per acre

Fadama Tine Cultivation in both directions 60/- per acre

The Agricultural Superintendent explained that the Province has been divided into divisions and in each Division there is a team leader whose duty it is to supply the Headquarters with the weekly return of the operations.

TOBACCO DEAL: STATE FROWNS

The Government of the North Western State has severely criticised the method by which the Nigeria Tobacco Company (N. T. C.) buys tobacco from farmers in this State through a clique called the 'master farmers'.

In a strongly worded statement issued here recently the government described the method as tendentious and one which savours of bribery, corruption and brutal exploitation of tobacco farmers, and has thus called on the Company to remedy the situation immediately.

Giving details of the 'deplorable system' as currently operated, the government explained that the Nigerian Tobacco Company refuses to have anything to do with the tobacco farmers directly.

Rather, a handful of these farmers, named by the N. T. C. as 'master farmers', are contracted as the 'go betweens' These master farmers constitute just a fraction of the total number of tobacco farmers in the state: In a particular area, there are only 70 out of 6,000 farmers'.

The statement pointed out that as the ordinary tobacco farmers has no other avenue by which to market his produce other than the N. T. C. through the so-called master farmers, he is compelled to sell to this N. T. C. accredited agent – at times at give away prices. What is more, investigations have revealed that many of these so-called master farmers are in fact, not farmers at all, but Nigeria Tobacco Company's financed agents who dictate the policy of production and distribution.

Some of the master farmers are even known to have bought tobacco from hard-pressed farmers months before the produce was ripe and ready.

Investigation have also revealed that some farmers pay anything between £1 or £3 as bribe on a bundle of tobacco to the agents in order that their ware could be accepted. Any farmer who refuses to yield to this corrupt practice runs the risk of getting his tobacco rejected.

For this reason, all farmers have had to subject themselves to this gruesome rack which, in effect, reduces them to the status of mere laborers in their own farms.

The government has also called on the Federal Military Government to help in finding market for Nigerian tobacco in any part of the world in order to make it possible for tobacco farmers to grow beyond the present restricted level dictated by the Nigerian Tobacco Company.

Currently, the total output of the crop in the State is dictated by the N. T. C. thus farmers always run the risk of giving away 'surplus" products or burning them.

The North Western State is one of the major suppliers of tobacco in this country. In 1965, a total of 9·4 million (lbs) pounds of tobacco was marketted in the State as compared to a total figure of 11·5 million for the whole Northern States. Last year the State produced 5·47 million lbs and this figure could easily be trebled if the market could be found.

Meanwhile, the State's Ministry of Natural Resources and Co-operatives is en

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HOW TO IDENTIFY PARASITES

THE presence of parasites on the farm constitutes one of the major problems any livestock breeder has to combat to ensure healthy profitable products. In this instalment, external parasites of poultry are discussed. A careful study of the symptoms mentioned will help in spoting these harmful insects that may reduce or even ruin your otherwise profitable business. In our next and last instalment, the control of these parasites will be fully discussed.

BY A SPECIAL CORRESPONDENT

To control the parasites effectively you will have to identify the kind that is causing trouble, for the type of control method differs for different parasites.

FOWL MITE

The fowl mite, *ornithonyssus sylviarum*, is suspected if you see small reddish or dark specks move across the surface of newly laid eggs.

To check further, look for the mites around the vent or along the sides of the breast on the skin and feathers. Damage by the fowl mite includes production of anemia. The birds have a droopy weakened appearance, with pale comb and wattles. Heavy infestations may result in death.

The fowl mite is a bloodsucker which usually spends its entire life on the bird.

POULTRY MITE

The common poultry mite, *Dermansyssus gallinae*, also is a bloodsucker but attacks the bird only at night to feed, and spends the day in crevices in the roosts or housing. Like the fowl mite you may spot this mite crawling on newly laid eggs.

To identify it further look for masses of mites in cracks of the housing near the roost where the common poultry mite can survive for months without feeding.

It causes the same symptoms on birds as the fowl-mite—anpemia, droopy appearance, pale comb and wattles.

Note : Other mites, not connected with poultry, may live in the roosts and housing, feeding on debris or poultry mash. These mites do not affect your poultry production, so make sure before you treat for the common poultry mite. In doubt, ask your farm advisor.

CHICKEN TICK

The chicken tick (" blue bug "), *Argas persicus*, is large enough to be identified by observation, but they often are hidden. Its first stage, or seed tick, has three pairs of legs and is much smaller than the adult. Seed ticks remain attached to fowl three to 10 days sucking blood ; then they drop off and hide in nearby cracks. The adult tick is up to ½" long, has a flattened, oval-shaped body, and four pairs of legs.

Once it drops off the bird it remains hidden and attacks birds only at night ; you can find chicken ticks by removing loose boards or scraping out the contents of cracks in the housing near the roosting area.

Symptoms—such as anemia —are similar to those caused by mites. In addition to damaging the bird directly by mites. sucking blood chicken ticks transmit the agent of fowl *spirochaetosis* in flocks where this disease has been introduced.

CHICKEN BODY LOUSE

The chicken body louse, *Menacanthus stramineus*, is the commonest of the several kinds of chewing lice found on poultry. Lice spend their entire lives on the skin or feathers of the birds, attaching their eggs to the feathers.

Poultry lice do not suck blood but feed on skin scales and feathers, and their presence in considerable numbers produces skin irritation and scabbing.

Young chickens are quickly and severely affected, and become droopy and ruffled. Diarrhea and death frequently follow.

The controls are the same for all kinds, although some are harder to control than others. You can recognize lice as wingless forms, with three pairs of legs, and their body divided into three sections—head, thorax, and abdomen—although sometimes only two are obvious.

Lice are also characterized by a flattened appearance as if pressure had been applied from above.

STICK TIGHT FLEA

The sticktight flea, *Echidnophaga gallinacea*, is one of the two main types of fleas also found on poultry, particularly in warm dry areas. The sticktight flea is small and dark brown, usually remains attached to the skin of poultry, often around the eyes.

It also survives on dogs, cats, rodents, and other hosts. The eggs drop to the ground and hatch.

The tiny worm-like larvae live on organic debris on the ground, nesting boxes, or similar sites.

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TERRAMYCIN CONTINUED FROM PAGE 6

water until disease danger subsides.

4. DEFICIENCY DISEASES: Paralysis, loss of vitality, increased mortality, and nervous incoordination are symptoms of Vitamin deficiency.

Dosage:- Use 1 Level teaspoonful to 1 & 1/2 gallons of water for 2 weeks and continue at 1 teaspoonfull to 8 gallons of water.

5. ENDS OF LAYING CIRCLE: Obtain high production at this time when egg size is biggest.

Dosage:- 1 teaspoonful to 1 & 1/2 gallons of water for the last four weeks of the laying circle.

EARLIER AND EARLIER PEAKING: Dosage- 1 Level teaspoonful to y & 1/2 gallons of water for the first four weeks and continue at 1 teaspoonful to 8 gallons of water after this.

PROFITABILITY OF TERRAMYCIN EGG FOMULA

1. REDUCED MORTALITY: Even in the best of forms mortality at the point of lay is a regular occurrence. But by using Terramycin Egg Formular, this mortality is greatly reduced. During this time, Terramycin Egg Formula saves between 5 and 10% of the birds. The figure could be higher if optimum management condition does not exist. The value of 5 hybrid pullets as potential sources of 20 or more dozen eggs each should not be overlooked.

Each bird gives direct profit of at least £1 (culling value plus eggs less expenses). An average farmer who might have lost 10 pullets out of his flock of 100 birds has already saved £10, while the best farmer has gained £5, because they have prevented mortality by using Terramycin Egg formula.

2. EXTRA EGGS: Highest profits are only realised when Terramycin Egg Formular is used continuously through the bird's laying circle. Profits from these eggs can be easily calculated.

COST:

Dosage of 1 teaspoonful to 1 & 1/2 gallons of water is used at:

1 Point of lay for the first 4 weeks.
2 End of lay for the last 4 weeks.

∴ 1 Level teaspoonful per 1 & 1/2 gallons of water is used for 8 weeks or 56 4 days.

Generally, in 1 day, 100 layers drink 8 gallons of water

∴ in 1 day 1 layer drinks $\frac{8}{100}$

∴ in 56 days 1 layer drinks $\frac{8 \times 56}{100}$

= 4 & 1/2 gallons.

Number of teaspoonful required = 4 & 1/2 *divided by* 1 & 1/2 = 3.

In the remaining 310 days, 1 layer drinks $\frac{8 \times 310}{100} = 24.8$ gallons.

∴ Number of teaspoonfuls required = 24.8 *divided by* 8 (continuous dosage is 1 teaspoonful to 8 gallons)

= 3.

Total number of teaspoonfuls required per bird per year

= 3 *plus* 3

= 6

but 1 teaspoonful cost approximately 1/-

6 teaspoonfuls cost ,, 6/-

RETURNS: During the laying circle, the farmer will get at least one extra big egg per week. Most farmers even do better than this.

Returns from 52 eggs at 4/- per dozen = 17/4d

Profit from eggs per bird = 17/4d — 6/-

= 11/4d.

Taking profit per bird as 11/-, profit from 100 layers is £55.

£55 is what the farmer who has 100 layers is losing because he is not using Terramycin Egg Fomula. For the greatest pessimist, 5/- per bird is more than possible. It is an accepted reality. Even here a substantial extra profit of £25 is in his pocket, £25 to £50-extraprofit is for any poultry farmer who choses the best feeds (manufactured by Livestock Feeds Limited) and Terramycin Egg Formular for his birds. It can be yours if you start using Terramycin Egg Formular today.

And practically Terramycin Egg Formula.

i Is very easy to use.
ii Is readily soluble in water.
iii Does not corrode your water founts or troughs, or block automatic waterers.
iv Stores well under cool dry condition.
v Is available in handy packages of 1/4 lb. unbreakable plastic containers.
vi Is very cheap, just 1/- per teaspoonful.

MANAGEMENT HINTS: Best results from the use of Terramycin Egg Formula are only realised when management is excellent. Particular attention should be paid to the provision of feed and fresh clean water ad lib to ensure profit maximisation.

It is an expensive mistake to regard Terramycin Egg Formula as a substitute for good quality feeds (as those prepared by Liverstock Feeds Limited) and drinking water.

Continued from page 5

RAINY SEASON

Fortunatelyonly chicks less than 4 weeks of age are susceptible to Aspergillus. If birds can pass that age without infection they will not get it afterwards. Really, the bird grows more resistant as it gets older even up to 4 weeks and most of the danger is in the first 7–10 days.

Then the disease develops in the bird for a little while before it shows. If disease is suspected the farmer should always seek Veterinary advice. However Aspergillus is a disease which can usually be recognised by the farmer himself quite easily if he has seen it before. (Even if he can recognise it, it is still best to consult a Veterinary adviser in case of complications.)

Apart from the appearance of the sick chicks he will find typical white roundish spots on one or both of the lungs in birds which die. An u usual variation is the e form of the disease. T fungus grows into a soft wh lump under the eyelid. If t lump is removed carefu the chick may recover qu well.

Since only very you chicks are affected, preve tion by keeping them out contact with damp litter quite easy. There are vario precautions such as t following:-

1. Rearing chicks in cages or verandahs, so that they do not come in contact with litter. This is also good for preventing other diseases, and has other advantages too.

Pullets to be reared for laying can be kept right up to point of lay in brooder/rearing cages, and broilers can be kept up to 3½ lb. liveweight in wire floored units. (Broilers kept over that age on wire develop breast blisters.)

Moving birds from cages or verandahs to deep litter after they have passed the age of susceptibility to Aspergillus is not a good idea because of the increased risk of concidiosis.

2. Litter houses with earth floors are worse for Aspergillus than those with concrete floors, as moisture comes up from the earth in the rainy season. Concrete floors are best laid on top of a waterproof course of plastic sheet to prevent rising damp.

This is particularly important in places where the ground is often wet.

3. Shavings or other litter should be collected dry and stored in a dry place.

Poultry Management (3)

GROWING HOUSE EQUIPMENT

FEEDERS, waterers, and electric lights are standard equipment for growing houses. Requirements for feeders and waterers are the same as those for brooding houses.

If roosts are to be used in the laying house, they should be provided for pullets in the growing house.

RANGE EQUIPMENT

On range, provide three 6-foot feeders open on both sides for each 100 birds, or 4 inches of feeder space per bird. To supply water on range, use one 8-gallon gravity-flow waterer, or 8 linear feet of a trough-type waterer, or a fountain with an equivalent capacity for each 100 birds.

Feed hoppers and waterers for range should be close to the shelter. Range equipment may include a protective canopy or sunshade. Many range shelters have no interior equipment. Some have one feed trough and one fountain inside the shelter for use in bad weather.

Roots and nests should be installed in range shelters before pullets begin to lay. Place roosts at floor level.

LAYING HOUSE EQUIPMENT

Nests

Well-designed nests can reduce the time needed to care for the laying flock and the eggs. Nests may be metal or wood ; they may have roll-away floors with egg trays, or other arrangements for convenience in collecting eggs. The interiors should be dark.

Nests may be laced in the middle or along the wall inside of the building. They sometimes are arranged in a double deck.

Community nests accommodate several layers at one time. Allow one nest 2 feet wide by 6 feet long, with an entrance 8 inches square, for each 50 hens ; or provide 1 square foot of nesting space for each four hens.

Individual nests are just large enough to hold one hen. In figuring flock needs, provide one individual nest for each four birds. Usually, an individual nest is 10 to 12 inches wide, 12 to 14 inches high, and about 12 inches deep.

A perch below the entrance will help keep the nest clean.

Roosts

Roosts should always be used for growing pullets that are later to be maintained as layers in houses with roosts.

Rosts should be made of 2-inch stock, with rounded or beveled upper edges. Leghorns and other small breeds require 8 inches of roots space per bird ; large breeds require about 10 inches of space per bird.

Place roosts 13 to 15 inches apart. Normally, roosts are placed above droppings pits.

Perches, if used, should be built on a slant from the floor.

The back of the perches should be 24 inches from the floor with 1-inch mesh wire beneath them. Beveled 1-by 1-inch material makes a satisfactory perch.

Multiple-deck roosts sometimes are over droppings pits for use with flocks of more than 1,000 birds. Housing needs are reduced by ½ square foot of floor space per bird with multiple-deck roosts.

Droppings Pits

A droppings pit is designed to hold droppings for several months. For ease in handling, the floor over the pit may be made into 6-by 6-foot panels.

There is a real saving in labour from the use of pits. However, pits harbour rats and are a breeding place for flies.

Feeders and waterers often are placed over pits.

Feeders

Allow six hanging feeders—each 15 inches in diameter with a 35-to 50-pound capacity—per 100 medium-weight layers. If hanging feeders are not available, provide at least 40 feet of feeder space (four 5-foot trough feeders with both sides open, or the equivalent) for each 100 laying hens.

Automatic feeders vary widely in capacity. Consult the manufacturer's literature or a specialist before installing such equipment.

All feeders should be placed within 10 feet of a waterer.

Hoppers are needed for insoluble grit and calcium supplements, if these are not included in the feed. For each 100 hens, provide a 12-inch granite grit hopper box and a 12-inch hopper for oystershell or limestone grit.

Waterers

Provide and 8-foot automatic hanging waterer, open on both sides, or an equivalent 16 feet of watering space, for each 200 pullets in the laying house. Increase watering space 25 percent when temperatures go above 80°F.

If watering devices are placed on roosts over droppings pits, the amount of wet litter in the laying house will be minimized.

Water systems may be automatically controlled. or they may flow continuously. Adequate drainage should be provided.

Water requirements vary with the type of water and the season. An automatic system uses 6 to 8 gallons of water daily for each 100 layers.

A reserve water supply is helpful in disease outbreaks or times of disaster. One or more clean oil drums can be used for water storage.

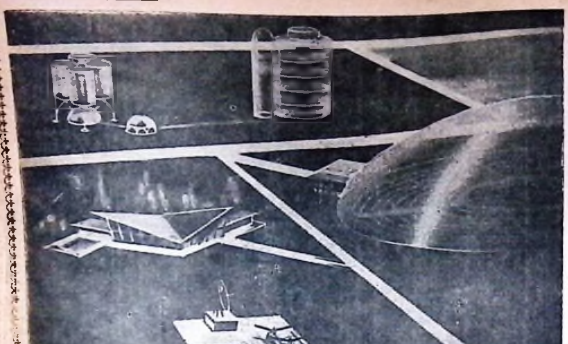
Lights

Before installing light fixtures, be sure that the electrical wiring is adequate and that it meets all safety and local code requirements. If you need assistance, contact your local power company.

Automatic switches to control lights are inexpensive and easy to install. An automatic time clock may be set to turn lights on and off at desired times. Automatic dimming devices are recommended when evening lights are used.

Allow one ceiling light for each 200 square feet of floor space. Adjust lights to illuminate the entire floor and roosting areas.

For daytime, morning, or evening lighting, use 60-watt incandescent light bulbs. Shallow-dome (aluminum pie-plate) reflectors or bulbs with built-in reflectors improve the distribution of light within the poultry house.



"TYPICAL" FARM OF YEAR 2000—This might well be what the "typical" farm will look like in the next 30 years. In centre background is warehouse complex and refinery where barn waste is purified and recirculated back to barn. At right is huge plastic dome covering 10 acres (four hectares) or more and under which crops are grown with computer-controlled environment for maximum production. To left of dome is farmhouse and in front of it the control centre.

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SUPER TOOLS,

BY SA
U. S. AGRIC

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breed of farmer, with su
two-year survey by Ford
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from carrot tops, cows w
covering acres of cropla
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many countries.

WHAT will farming be like in the year 2000?

Will agriculture be capable of feeding a world population that in all probability will total 7,000 million, or double what it is today?

Will farming techniques of today be obsolete?

These were some of the questions that prompted the Ford Motor Company's tractor and implement operations division in Birmingham, Michigan, to make a two-year survey.

Ford, one of the world's largest tractor manufacturers, recently released an illustrated report, "Agriculture 2000."

The report can be summarized in a single sentence extracted from the conclusions of Ford engineers and other technical personnel, as well as two Michigan State University professors who consulted specialists from many countries.

"The efficient farmer of the year 2000 will be a super breed of farmer, with super skills and super tools."

Tractors that run without operators—milk from carrot tops and pea pods—cows with 1,000 offspring—glass or plastic domes covering acres of cropland—corn plants resembling small pine trees—farming of the seas—phenomenal crop yields—algae as food for man—vast refineries extracting rich proteins from oils.

These are just a few of the possibilities that are likely to become commonplace on farms in various parts of the world by the turn of the new century.

DEVELOPMENTS

The year 2000 will see many other unusual agricultural developments:

Some farmers will use electronic-eye machines that shoot seeds into the soil by pneumatic injection. The seeds will be coated with chemicals which will keep them dormant until the proper time for them to start the growth process.

Machines equipped with electronic devices and computerized fingers will decide when a crop is ripe for harvesting. Then the machines will pick, sort and package the crop right in the field.

Machines will harvest one crop and simultaneously plant another. Airborne equipment—a combination hovercraft-helicopter— will be used for spraying.

Orbiting space satellites will supply reports on crop

AIRBORNE—by turn of the te
jobs from the air with equipment
one machine which lifts off the g

RMERS EAR

SKILLS AND
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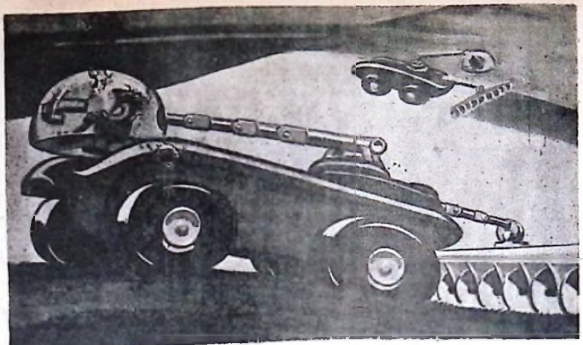


TRACTOR OF THE YEAR 2000—Powerful new farm equipment will be needed to handle crops. Tractors will run on four—or six-wheel drive or on pneumatic tracks, powered by electric drive, fuel cells or storage batteries. Pictured model can position operator in front or rear.

r 2000 will be a super nd super tools," says ompany to learn what t three decades. Milk ffspring, plastic domes ck living in high-rise nal crop yields, vast teins, tractors run by sing devices—these are experts consulted in

conditions based on the quality and amount of light reflected by the earth. Satellites also will detect insect pests and diseases long before they can gain foothold.

When an infestation is found, farmers will spray crops with miniscule amounts of powerful chemicals—a mere fraction of an ounce of insecticide per acre. By the year 2000, farmers will use harmless insects to control pests. Other effective biological controls will doom harmful insects.

FUTURE FARMS

Farms of the future will bear little resemblance to those of today. The agricultural landscape will be dotted with many-storied apartment-like buildings, but the occupants will be not people but animals—cows, steers, sheep, pigs and chickens.

The building's temperature, humidity, fresh air and light will be precisely regulated.

Waste products will be flushed through disposal pipes connected to a nearby treatment plant where the water will be purified and recirculated to drinking units.

The Ford study visualized six-wheel-drive tractors controlled by computer tape, buried wires or sensing devices. The tractors will be powered by electricity from fuel cells or storage batteries.

Tractor cabs will provide air-conditioned comfort for the operator, and will be equipped with a food warmer, refrigerator and television.

"Cows, which will have quadrupled their own milk production by the year 2000, will be backed up by the manufacture of identical milk from carrot tops and pea pods," the Ford report said.

"Fertile eggs will be transplanted from superior cows into common incubator cows, allowing a superior cow to mother as many as 1,000 calves in her lifetime, compared with today's average of 10.

"To completely control environment and growing conditions, huge plastic or glass domes will be erected to cover 10 or more acres (four or more hectares).

Plant growth will be automatically recorded so the farmer can provide the proper light, water and nutrients simply by turning a dial.

Continue on page 21

-s in advanced Countries may do some of their most important combination helicopter-hovercraft. Engineers have already built air pressure to spray cranberry vines on rough ground.

TURNI TO GO

A SECOND-HAND industrial centrifuge is converting the effluent from 1,000 pigs on a British farm from a nuisance to a valuable by-product.

As livestock production becomes more intensive in Britain, manure disposal has become a major problem on farms carrying large numbers of cattle, pigs or poultry on a small acreage (number of hectares).

If too much manure is spread on land it can do serious damage to fertility. There is also a risk that some manure from heavy applications may drain into rivers and cause pollution.

Mr. G. A. Wright, who fattens 1,000 pigs at a time on his three-acre (1.2-hectare) farm at Forest Lodge, Winkfield, Berkshire, was facing this problem in 1963. He decided that using a centrifuge to spin the semi-liquid manure at high speed could solve the problem, and he started experimenting with a borrowed machine.

His aim was to spin out the solid material from the semi-liquid piggery effluent. The solids he planned to sell as a horticultural manure and the liquid remaining be sufficiently purified to make disposal more easy.

Bought Machine In Scrapyard

After some initial problems of getting the effluent to the machine at a suitable rate, and removing the spin-dried solids, Mr. Wright was satisfied that the idea would work, and he bought a serviceable centrifuge from a scrapyard.

Now all the effluent from his slatted-floor piggeries drains to a concretelined holding pit 18 yards (16.5 metres) long, 5 feet 6 inches (1.7 metres) wide and 3 feet (91 centimetres) deep at the shallow end, with a fall of 1 foot (30 centimetres). When Mr. Wright wants to use his centrifuge, he first stirs the liquid in the pit, using a pump powered by a two horse-power motor.

The same electrically-driven pump can then be switched to deliver the stirred liquid to the centrifuge. The solids spun out by the centrifuge are then delivered by auger to a bagging-off point.

The unit can be left to run without attention, in which case the solids are allowed to accumulate in a heap on a concrete floor for packing later in polythene bags.

Mr. Wright spreads the liquid which has been treated on to pasture land throu ordinary irrigation equipme using 3/16 inch (4.8 millimet jets. With the solid mate removed there is much l danger of blocking the j and less risk of damag the land or causing wa pollution.

The centrifuge he uses

FLUKES ARE SOFT, FLATTENED, LE LIKE WORMS THAT EXIST IN VARIO PARTS OF THE ANIMALS WHICH TH PARASITIZE. THESE WORMS HAVE THER COMPLICATED LIFE HISTORI THEY ARE TRANSMITTED FROM O HOST ANIMAL TO ANOTHER BY WAY A SNAIL CARRIER AND SOMETIMES WAY OF ADDITIONAL INTERMEDIA HOST OR CARRIER.

FLUKES

Although a number of different flukes have been recorded from pigs in various parts of the world, only two kinds are particularly important.

The Common Liver Fluke

The common liver fluke, *Fasciola hepatica*, is primarily a parasite of sheep and cattle, but also of other animals, including pigs. The worms are about 1 inch long by about one-half inch wide and live in the bile duct and bile canals of the liver.

Liver flukes in pigs found only where the ani are kept on low, swa ground. Such wet areas likely to habour aq snails, in which the development of flukes take place.

Sooner or later the ye flukes leave the snails. Sw pick up the infestation w they swallow green foo or water habouring the fl in its infective stage.

The Lung Fluke

Lung flukes, *Paragoni westermanii*, are thick

PIG MANURE USE

a 15-inch (38-centimetre) bowl model powered by a 15 horse-power electric motor. A similar centrifuge factory-reconditioned, costs between £2,000 and £3,000, and would cope with a much qigger throughput than at Forest Lodge, where it produces about three tons of solids a week, with about 50 per cent. moisture content.

Discounts For Quantity

Local gardeners buy the bagged manure for £17 a ton, and Mr. Wright reckons he is left with £10 a ton after meeting transport costs and allowing discounts for quantity. The running costs for

by
Michael Willams
of the "Farmers Weekly"
London

the elecc mototrirs is about £2 a week, says Mr. Wright, and depreciation £8 a week.

"My pig unit is about the minimum size which can justifiy the equipment and leave a profit," he said. "But I think it would be an ideal system for a goup of farmers to share on a co-opirative basis. I would not ony make a useful profit, ut would alsomake muck bsposal verymuch easier."

A spokesman for the Water Pollution Research Laboratory said that centrifuging had been used successfully for dealing with humat sewage. He thought it could work well with piggery effluent and reduce the risk of river pollution. Mr. Wight's unit has already attracted the interest of Ministry of Agriculture Officing and of other farmers facials fllu ent disposla problems.

They leave the snails and develop further in crayfish. Pigs rooting in wet and boggy pastures have ample opportunity for bringing crayfish to the surface and devouring them. Once free in the digestive tract of a pig, the young flukes bore their way through

PIGS: their Internal Parasites (2)

A U. S. A. I. D. Series

FLUKES

the intes.inal walls, wande to the lungs, which they penetrate, and there develop to egg-laying maturity.

Damage

No special symptons have been noted in affected pigs, largely because the infestation has not been studied extensively in these animals.

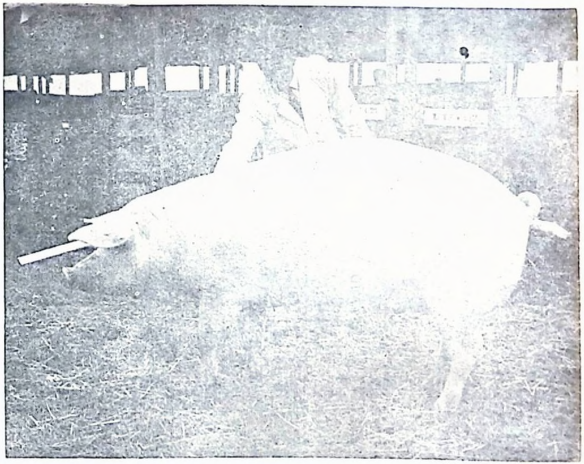
The presence of flukes in the lungs produces an inflammation. When an infested lung is viewed superficially the cysts generally appear as dark areas ; if the cysts are deep in the lungs, the surface of this organ may show only a swelling.

Treatment

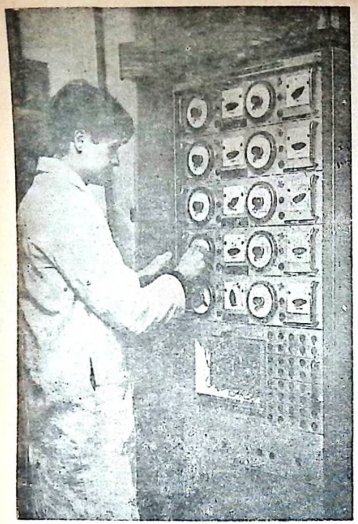
There is no known treatment that removes lung flukes from pigs.

Control

Control of lung-fluke infestation in pigs is based on the mode of transmission. Keep pigs off wet and boggy areas. If necessary, fence such areas to prevent access to them.



A well-bred sew – Llaca Marigold 6th Supreme Cha pion Recorded S o w at 1968 Bath West and Southern Countries – owned by a throphirl farmer. Only much care a g a i n s t parasites (internal and external) Can ensure the high standard attained by this champion.



AUTOMATIC FEEDING SYSTEM FOR LAMBS

MR. R. H. Johnson, left, a scientific assistant at the Grassland Research Institute, near Reading, southern England, sets the electronic timing mechanism at the control panel of the new automatic feeding system for lambs that was demonstrated recently at the Institute.

The aim of the new system is to help increase lamp production by feeding orphan lambs or lambs that cannot be fed by the mother (some ewes cannot provide even enough milk for two progeny, altough some of the more prolifihc breeds produce up to seven lambs a litter).

The new system elimin hand feeding of the ' lambs and so cuts labour co

A farmer can put lamb a feeding programme by setting the central co panel, which he can according to the age requirements of the ani

Every lamb gets a contr amount of cold mild subst pumped through a ring from a central tank fro individual teat specially signed for the equipment.

At the pre-set time, feeding bar moves for into the pen and is later drawn at the end of th

Continue in next col

CUTTING THE COW OUT OF MILK PRODUCTION

by

MICHAEL WILLIAMS

of the "Farmers Weekly"

London

SYNTHETIC MILK PRODUCED AT BRITAIN'S FIRST "DIARY FARM WITHOUT COWS" IS ATTRACTING WORLD-WIDE INTEREST. ON ITS HOME MARKET, THE PRODUCT, FIRST LAUNCHED EXPERIMENTALLY IN 1964, IS ATTRACTING RAPIDLY INCREASING DEMAND.

The "milk" is claimed to be a complete substitute for the natural product. The makers, Plantmilk Ltd., of Tithe Farm, Langley, Buckinghamshire, recommend it as a pure drink, for use in milk-based drinks, or as an alternative to cow's milk in cooking.

The synthetic product has the same appearance as ordinary milk, but most people who try it agree that the taste is slightly different.

Continue overleaf

LAMBS

Individual controls at each teat bar make it possible to feed lambs at different stages of growth with the correct quantities of food.

Lambs (left) enjoy a feed from a new automatic feedings system developed in Britain and demonstrated recently for the first time at the Grassland Research Institute, near Reading, southern England.

The aim of the equipment is to help increase lamb production. Many ewes have difficulty in providing enough milk to feed more than one lamb and about fifteen per cent of the lambs die.

With this system, known as "Autowean", it is now possible to deal with any size of litter and eliminate hand feeding, thus cutting labour costs.

A farmer can put lambs on a feeding programme by presetting the central control panel, which he can vary according to the age and requirements of the animals. Once set, the system works automatically.

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Continued from page 10

RAINY SEASON

4. Brooders should be lit well before the chicks arrive, to dry the litter completely and make it warm for them.

Even these precautions are not enough. One or other of the following is still necessary, the second being safer.

5. Cover the area where the chicks are with paper, (empty feed bags opened out are good) for the first week, no longer. Change the paper when it gets dirty. This keeps the birds off the litter during the most susceptible period of their life.
6. A better method, but costing a little more is to make wire floors on moveable wooden frames, a few inches off the floor of the house.

The chicks are kept on the wire floors for the first 10 to

Continued from page 14

TURNING TO GOOD

worms, about one-fifth to three-fifths of an inch long and one-fifth of an inch or less wide. They exist in sacs or cysts in the substance of the lungs.

Life History

The eggs produced by the flukes in the lungs are coughed up and swallowed and then discharged with the droppings. In swampy areas the eggs hatch, and the young flukes get into certain aquatic snails, in which they develop.

Continued from page 19

MILK

the possibilities are considerable.

"Waste" A Valuable By-Product

He has recently returned from Mexico with samples of waste trimmings from cane at sugar refineries. Tests so far indicate that this could be a commercially valuable source of "milk".

"I found a good deal of interest there in the idea of setting up synthetic milk processing alongside the refineries," he said. "They have to get rid of the waste, and this could be a method of converting it into a valuable by-product. It should be possible to adopt the same procedure elsewhere in South America and in the West Indies."

"In other countries they are also processing wastes from crop plants which could be used. Banana leaves are one example, and we are in contact with someone in Italy who is interested in the process for using material such as pea vines at vegetable canneries".

"There is no waste problem with our process," he added. "The fibre we are left with after the process is completed makes excellent manure, and it is also possible to produce' pchlorohyll as a by-product.'

Continued from page

PARASITES

The irritation produced by this flea causes the formation of ulcers which may result in blindness and death. Young birds often die quickly if heavily infested.

WESTERN HEN PLEA

The western hen flea, *Ceratophilus niger*, is larger than the sticktight flea and is usually found in nest litter or occasionally free on the bodies of the birds.

It attaches to suck blood for short intervals only. In other respects its habits are similar to those of the sticktight flea.

LEG MITES

Scal leg mites, *Knemidocoptes matans*, occur occasionally on poultry, usually only on old birds which should have been culled.

They borrow themselves into the skin of the legs where they live, and are almost microscopic in size, therefore can be identified better by the symptoms they cause : loose scales, swellings, and a rough appearance of the legs and feet of infested birds.

When birds are left untreated, the legs and feet may become so distorted the birds have difficulty in walking.

BED-BUGS

Bed-bugs, *Cimex lectularius*, *Haematosiphon inodora* are rarely found on poultry. They are flattened like chicken ticks, and have similar feeding and hiding habits.

They are about ¼" long yellowish, and have three pairs of legs.

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Continued from page 1

MILK PRODUCTION

It is sold in three-quar pint (0.43-litre) cans at do strength, and when dil with an equal volume water the analysis is sim to that of natural milk. Fa content is slightly under 2 cent, and there is 3.25 cent vegetable protein 3.25 per cent. vegetable liquids extracted from v table matter, or soya pro base with added veget oils and sugar. In either a full range of vitamin added.

Ninety Per Cent Efficienc Coming

The process for produ "milk" from vegetable ma by machines instead of cows was first developed Dr. H. B. Franklin, wh now technical adviser to company.

He designed special eq ment to lacerate the p material, extract the liq from it and convert thes chemical processes to "m

"With the machinery have at present we can ex 80 to 85 per cent of protein from vegetation, said.

"But I think it wil quite possible to get thi well above 90 per cent a improve the technique.

"We are already a deal more efficient than cow at protein produc Cows convert only abou per cent of the protein eat into milk."

Dr. Franklin has experi ted with a wide range of p as raw material for his pro The best results, he says, from vegetable matter w high moisture content, su pea vines. Stinging nettle sugar beet tops have also used successfully, and he fel that even bracken can pro an acceptable synthetic

Continue in next pa

Soya bean protein is being used at present in place of fresh vegetable matter, for convenience. This has proved an acceptable alternative uinlt more reliable supplies of plant material can be arranged. The company is now negotiating with major food processing firms for a steady supply of waste vegetable matter, especially from vegetable canning.

Ready Market

The synthetic milk, brand name "Plamil," is finding a ready market in spite of being more expensive than cow's milk. The retail price is 2/11d. a can, which contains the equivalent of one and a half pints (0.85 litres) of natural milk.

Cost is determined mainly by throughput. Last year sales increased by 30 per cent to reach more than 600 gallons (2,728 litres) of milk a week. This level of production must carry all the overheads of labour, processing, pasteurising and canning equipment and other costs.

A substantial increase in sales could bring the price down, said Mr. C. J. Cross, who is in charge of administration at the factory. He believes that eventually it might be possible to sell synthetic milk in Britain at the same price as cow's milk, or even more cheaply. "But that won't happen for a long time," he added.

"Plamil" sell throughout Britain in health food shops and direct to hospitals. The customers are vegetarians, people with an allergy to cow's milk, and those who believe that animal fats may be harmful to health. Medical interest in synthetic milk is growing, said Mr. Cross, and accounts for a large share of the sales increase.

Besides the "milk" there is a growing range of foods which contain "Plamil". So far these are a chocolate, fudge, and a canned pease pudding. A synthetic cream is now nearing the production stage and the company is also interested in developing a synthetic cheese.

Big Overseas Interest

Dr. Franklin described overseas interest in the "milk" as tremendous. There have been inquiries from countries in Africa, South America Europe and the Far East, and negotiations are under way with buyers in Canada and Sweden.

"Plamil" has already been sold to New Zealand, a country which supplies large quantities of dairy products to Britain, and to Holland and South Africa. Exporting is eased by the fact that the "milk" will keep indefinitely at normal temperatures in the can. Out of the can its life is similar to that of ordinary milk.

The big problem in exports has proved to be the regulations in some countries which have to be overcome. These often arise because synthetic milk is difficult to classify, but also because of special requirements in some countries for vitamin content.

But Dr. Franklin's original idea was to export the process itself, so that synthetic milk could be manufactured locally. He believed this would be of special interest in countries with a shortage of food protein, and in areas where dairy farming is difficult.

He is now examining sources of waste vegetable material from other food processes as a supply of low-cost raw material for making "milk" and believes

Continue on page 17

NEW BRITISH MOBILE VETERINARY CLINIC

A completely new kind of mobile veterinary clinic has been built by a British firm to on-the-spot treatment of animals. Here, its team are examinig a goat for signs of disease.

The clinic is an entirely self-supporting unit capable of operating 800 kilomitres from the nearest base, having its own electricity and water supplies with accommodation for two and a tent to be used for additional member of the team if required. Designed for operation in difficult terrain, the vehicle carries towing winches that can be used to tow other vehicle, rescue animals - or get themselves out of trouble if necessary. The surgery is fully equipped to carry out vaccination programmes, diagnose and treat sick animals and mount educational programmes for farmers in isolated areas. Incubator, analysis instruments, a refrigerator microscopes and stores of vaccines are included amongst the equipment.

Builders: Thomas Kosking & Sons, Dumballs Road, Cardiff, South wats.

Continued from page 10

RAIN SEASON

14 days of life. After that they are allowed to run on and off as they wish until the floors are removed at 3-4 weeks old.

The brooders are on the frames, and the chicks are kept in place by a moveable circle of hardboard 2 feet high. (An 8' by 4' sheet cut in half which also cuts down draughts. The best wire is ½" by ½" square mesh, but expanded metal is more easily available in some places and will do if paper is put under the brooder for the first 2 days until the birds get used to walking on wire.

It is very unlikely that there will be any outbreak of Aspergillus if these precautions are taken. However if a farmer does suspect that his birds have the disease he should,

1. Seek Veterinary investigation to be sure that the disease is what he thinks, and when the disease is confirmed seek advice on what action to take.
2. If the birds are less than two weeks old cover the litter with clean paper and keep it covered until the birds reach two weeks, changing the paper when it gets dirty.
3. Kill badly affected birds, as they will never do well and only eat food to no profit.
4. Take good care of the rest of the birds in the flock so that they can recover and make some profit.

But if all the precautions recommended in this article are taken there is no reason why there should still be so many losses from Aspergillus every rainy season. There is no need for expensive medicine, only taking care.

Continued from page 8

(NEWS) FARMING BRIEFS

PRODUCE PRICE

THE Chairman of the Northern States Marketing Board Alhaji Ibrahim Dasaki has announced prices for cotton well in advance of the growing season. The harvest and sales starts next November. This early announcement is meant as an incentive for the farmers who will receive 6d per lb for Grade I cotton, 5d per lb for Grade II and 4½d per lb for Grade III.

X X X X

UNIFORM COFFEE PRICE DEMANDED

The entire coffee planters of Mambilla in Sardauna Province of the North Western State, have demanded a uniform price for coffees. They threatened that unless a fixed price was announced for the crop, they would switch over to other crops.

X X X X

NORTH WEST STATE PLANS FARM SETTLEMENTS

THE Government of the North Western State is to build two new Farm Institutes, at Bakura and Kuta, Sokoto and Niger Provinces respectively as soon as the recently approved grant of £512,522 from the Federal Government is made available to the State's Ministry of Natural Resources and Corporatives.

X X X X X

NEW ORGANIZATION TO PROMOTE WEST AFRICAN RICE PRODUCTION

An organization to promote rice production in West Africa will be set up at a meeting in September, the United Nations Food and Agriculture Organization (FAO) announced in Rome recently.

The meeting, to be convened at a yet to be determined city in West Africa, is being arranged by the FAO, the United Nations Development Programme & the Economic Commission for Africa (ECA).

Continue in next colum

RICE

Participants included representatives of the bilateral assistance agencies of the United States, France, the United Kingdom, Canada and the Netherlands, as well as the Rockefeller and ord Foundations.

The group discussed the growing gap in West Africa between the demand for and production of rice. Increased spending of scarce foreign currency by West African nations to import basic foods was noted with alarm.

Frank Pinder of the ECA tolo the representatives that West African countries are anxious to increase their rice production but hope for outside assistance.

And at Igbotako and Bokoda areas in Okitipupa Division, the Goverment has established a big palm plantation costing about £4. 2 million pounds.

BANK TO FINANCE FARMING

An Agricultural Credit Bank with initial capital of £3 million pounds is soon to start operating to help farmers throughout the Federation

This step has been taken in view of the general and enthusiastic switch towards farming. The information was disclosed recently at Kaduna Airport By Dr. Bukar Shaib, Permanent Secretary, Ministry of Agriculture. An important aspect of the facility is that it would not be on state level. Each farmer would be dealt with on merit and beneficiaries will be studded all over the Federation.

Unlike many other projects which will be held up until [illegible] possibilities, this farmers' Credit Bank Scheme is timed to begin [illegible] practicable

Continued from centre spread

FARMERS OF THE YEAR 2000

" Today's tall corn stalks will give way to new, squatty plants like pine trees to absorb more energy from the sun, and the ears will be attached to the top for easier harvesting.

Corn yields by the year 2000 will zoom to 500 or more bushels per acre (31 tons per hectare) compared with today's highest average of about 75 bushels in highly developed farms (4.6 tons per hectare)."

PREDICTIONS

The Ford study predicted fantastic yields in other crops, too.

For example :

Wheat—300 bushels per acre (eight tons per hectare), compared with today's average of 27 (1.8 tons).

Soybeans—175 bushels (4.7 tons per hectare), compared with today's 25 (1.6 tons).

Milk—30,000 pounds (13,600 kilograms) of milk per cow per year, compared with 8,000 (3,630 kilograms).

Beef—1,000 pounds (450 kilograms) of beef at 10 months of age, compared with 750 (340 kilograms) today.

Forage—30 tons of forage per acre (74 tons per hectare) compared with three (7.4 tons.)

"Agriculture today is an extremely complex field, and when elements of future technologies are added to this, the final results could be staggering," said John A. Banning, Ford official.

"The heart of the efficient farmer's operations of the year 2000 will be a control centre equipped with a wide array of electronic wizardry to help him produce crops two to five times as abundant as those of today."

SKILLS

Farm labourers of the future will require special professional skills to operate the sophsticated equipment.

The farmer himself will have to be very knowledgeable and college-trained in many subjects — among them big business management, electronics, computers, biochemistry and biophysics.

American farmers are not only helping to feed millions throughout the world today, but the war on global hunger in the next three decades, as the world population doubles in size, will be largely won by America's expanding agricultural science and technology, in the opinion of experts consulted by the Ford survey.

Mr. Banning said the illustrated Ford report will be translated into Spanish, French, German, and other languages and will be made available for public showings throughout the world.

Dr. Carl Hall, chairman of Michigan State University's agricultural engineering department, and Dr. John Harris, associate professor in agricultural economics, participated in the Ford survey.

Continued from page 17

LAMB

Every lamb gets a controlled amount of cold milk substitute pumped through a ring main from a central tank from an individual teat specially designed for the equipment.

At the present time, the feeding bar moves forward into the pen and is later withdrawn at the end of the feed. Individual controls at each teat bar make it possible to feed lambs at different stages of growth with the correct [illegible]

quantities of food.

The system, which has the backing of the British National Research Development Corporation, has already excited interest overseas. The Canadian Department of Agriculture has ordered a 1,600-teat system and some [illegible] enquiries have been received from thirteen countries.

MANUFACTURER

Ripper Robots Limited, Docking, King's Lynn, Norfolk, England.

LAUGH !!!

"Laugh and the whole world laughs with you, frown and you wrinkle your face alone."

WHILE the guest at a wedding reception stood around talking in small groups, I overheard an elderly gentleman asking a young man : "Are you the bridegroom ?"

"I'm afraid not," he replied. "I was eliminated in the semi-finals."

* * *

SUCCUMBING to my teenage daughter's urging to dress more fashionably, I bought a boldly flowered dress and shortened it to six inches above the knee. Bright pink stockings were purchased to complete the outfit. I didn't show the dazzling ensemble to my husband, but wore a coat over it as we set out for a party. I intended to surprise him and our friends with the new me.

When I flung off my coat at the party, a startled look crossed my husband's face. Then he announced to 50 people: "Well, you see, I couldn't afford a new wife—so I had the old one re-covered !"

* * *

I WAS BUSILY typing in my new job when a fellow employee came along and perched on my boss's desk near by. As they chatted, I heard him ask my boss, "How is the new typist coping along ?"

"Well," my boss answered after a moment of thought, "I don't pay much attention to her typing, but I certainly snap to attention whenever she shifts her carriage."

* * *

FOLLOWING A game of football, two men were dressing to go home. One fellow began putting on a woman's girdle.

"Good heavens," said his companion, "when did you start wearing a girdle ?"

"Since," ponted the first man, "my struggling to get the thing on, "my wife found it in the glove pocket of my car."

* * *

Dele had been asking his father for money rather too frequently. My husband decided it was time for a little lecture.

At the end of his talk he asked if Dele realized how long and hard he worked to get the money he had.

Dele was silent and thoughtful a minute, and then answered, "You're lucky. I have to beg for mine !"

* * *

MY ELDEST daughter was about to start kindergarten and I had to answer a questionnaire about her personality and development. Meeting a neighbour whose son was also starting, I asked her what she thought of the questionnaire.

Her answer summed up my feelings completely. "I'm torn," she said, "between telling the truth or giving him a good start."

* * *

When a ten year old boy came from Sunday school, his mother asked him what he had learnt that day "Well", said the boy, "our teacher told us how God sent Moses, behind the enemy lines to rescue the Israelites from the Egyptians. He brought them to the Red Sea, and then Moses ordered the engineers to build a pontoon bridge. After they all crossed over, they looked back and saw the Egyptian tanks coming. Quick as flash, Moses grabbed his walkie-talkie and asked the air force to send bombers to blow up the bridge and save the Israelites".

"Bobby" exclaimed his mother". Is that really how teacher told the story?"

"Well! not exactly," Bobby admitted. "But if I told it her way, you'd never believe it.

* * *

ON MY rounds as a salesman, I called regularly on a friendly old lady who always offered me a tea and delicious home-made bread.

One afternoon I arrived to find her old-fashioned wireless blasting out a lecture on Ancient Egypt.

"I didn't know you were interested in ancient history," I said.

"Oh, I'm not listening to it," she replied, "but the valves get just hot enough to make the dough rise in that bowl on top of the set."

* * *

RECENTLY my husband was summoned to appear in court on a motoring offence. The man just ahead of him was charged with driving the wrong way down a one-way street. The magistrate asked the man if he had anything to say in his defence. "Yes," he replied. "But I know you won't believe it."

"Well, go on," snapped the magistrate.

"You see," explained the man, "my wife said, 'Turn here,' so I turned."

OPINION POLL

What do you think of

FARMSTOCK?

Write to the Managing Editor, P. O. Box 79 EB, giving your ideas, suggestions or criticisms. You may thus be helping us give the public what it wants.

Early in the school year, t beginners at French that

would be achieved when they to dream in French. A cou months later, one of my m thusiastic pupils burst into th room and hissed to m happened! It happened! Last dreamed in French! Everybo talking French!"

"That's wonderful!" I said, you remember any of the co tion?"

The boy's face fell a trifle replied, "Well actually, I d understand a word they s

* *

BACKSEAT driving is'nt vocal. A friend tells abou derly father, whose daugh been driving for some ye rs w old man travelled with her.

He never said a word ab driving until one day when t happened to be with them. Th old gentleman muttered ne "Watch the road for a min you, Bob, while I tie my sho