Farmstock

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Agricultural economists from Uganda show interest in trial grasses at the Welsh Plant Breeding Station, Aberystwyth, Wales. . See p. 14

OPINION

HARVESTING THE PLENTY

The annual wastes has begun. The final flux of grain has started all over the coastal belt. In a few months, the northern half will also be in the grain boom. Like an avalanche spilling crumbs from boulders along its path and thawing to flood foothills, maize is just thrown everywhere now. The flood is on, people eat to their gullets and throw away. Some grain just rot away.

And the sanitary squads are quickly scavenging the rubbish, nay, wasted corn, to the dust heaps.

The poor farmer just has to sell his crops. As the rains come everyone rushes to plant maize unmindful of storage problems or the necessary effort needed to stabilize prices through cooperative marketing. Each farmer needs ready cash, that's why he rushes to sell and the buyers pay any price: the buyer dictates the price now.

In a few months now the FUNFARE about maize will be over.

In this context maize, is used representatively for all grains. Dearth of these grains will set in with ever escalating prices. The farmer will then be the commander of market price.

In order to arrest this unwholesome circumstances – an uncontrolled waste at one time followed by a scramble shortly afterwards due to scarcity – a few suggestions come readily to mind.

State Governments working through COOPERATIVE or FARMERS COUNCILS should instal SILOS all over their domains to afford storage facilities to farmers. The farmer may be paid off quickly as the grains are brought in. The state bodies may then sell the grains later on with a small profit to keep the organisation going. Such profits should be minimal.

The country largely depends on grains as pointed out by a correspondent in a 'Letters to the Editor' column last month. Only a foreigner has to spend some time to know the extent to which human beings vie with animals in the consumption of grains in one form or another.

Poultry business now thriving and offering gainful employment to many depends solely on grains. If the business has to continue, there must be enough corn to stabilise it to make chickens and egg, the products of the industry, tolerably low in price for a large part of the population to be able to buy them.

The price of a bag of corn now is roughly ₦ 30 . We have to think in terms of a bag since the ordinary petty trader who makes native snacks and confectioneries buys only a bag periodically.

No economy is sound which does not consider such humble citizens. Why? Such do not qualify for bank loans or overdrafts.

So, since they have to fend for themselses, it then devolves on the Government to make life as easy as possible by making their needs ready and near to them at reasonable prices.

Storage is our main headache now. The government must now exploit ways and means of curing the headache.

Farmstock

THE BIG LIVER DISEASE

by LESLIE J. ELMSLIE *M.A. (Cantab)*

Specialising in Agric.,

Big Liver Disease is a disease of layers, though it can sometimes affect birds in the later part of the growing stage. Typical sign is a very large liver, often spotted or discoloured, and un-naturally soft. The cause is a group of viruses which infect birds, and are collectively called the Avian Leucosis Complex Viruses.

As well as the liver other parts of the bird, including the spleen, kidneys, mesentry, and other parts can be affected, and also become large and un-natural looking.

Birds which die of the disease are usually thin, and have pale, bloodless comb and wattles.

There are two less common types the Avian Leucosis Complex which we can also discuss here. One is Pearly Eye. The symptoms are just as the name says. One eye becomes useless, and looks pearly.

The other is Marble Bone. The symptoms are very thick bones, usually in the

leg. Marble Bone sometimes affects a few broilers, and causes loss in the United States, where birds which have it cannot be sold for food.

Pearly Eye usually affects young layers, and only a small proportion of the flock.

Formerly Mareks Disease was included in Avian Leucosis Complex, but is now thought to be a separate disease entirely.

Deaths from Big liver disease do not come as a sudden epidemic. Some birds will be seen at point of lay with the disease, and deaths will continue all through the laying period.

As far as is known every flock of layers will have at least some of the disease, but the amount varies a lot.

Some flocks lose only very rare birds, others may lose up to 15% or even more. On average the disease causes one third of all deaths in layers. There is quite a lot of difference between breeds in the amount of Big Liver disease and there is also a lot of difference between farms, depending on how the birds are reared.

TREATMENT

Since Big Liver disease is caused by a virus there is no treatment which is of any use. There is also no vaccine. Prevention consists in trying to prevent infection entering the flock, and in using resistant types of bird.

Both are necessary. The way to prevent infection entering the flock is to rear chicks in isolation from layers, and also away from older birds.

The disease was very much of a mystery to both vets and poultrymen until 1960 when Rubin managed to grow the virus in his laboratory in California, and found ways of testing to see whether birds had it or not.

He found that many birds have the virus without showing any symptoms, and that others show symptoms only after a long time. Most chicks carrry antibodies from their mothers which help to protect them for some time after they are hatched, but a small percentage also carry the virus from their mother.

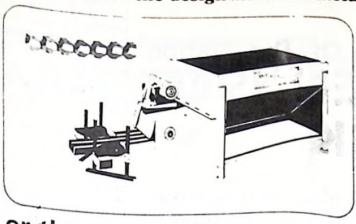
Important research work into this disease is also carried out at East Lansing, Michigan. Research workers there found that they could breed resistant and susceptible lines of birds. They also found that they could keep susceptible birds isolated from all contact with other birds, and keep them free of the disease.

Big Liver disease is not at all dangerous to people, and the birds from a flock which has high mortality from the disease are quite safe to eat. The best thing a farmer who has a lot of trouble from the disease can do is to watch carefully for birds going out of lay, and to sell these as culls at once.

These is some risk that viruses of the leucosis complex may be spread by live vaccines made from eggs, for example Newcastle disease virus. This risk is avoided if the vaccine is grown in tissue culture instead of in eggs.

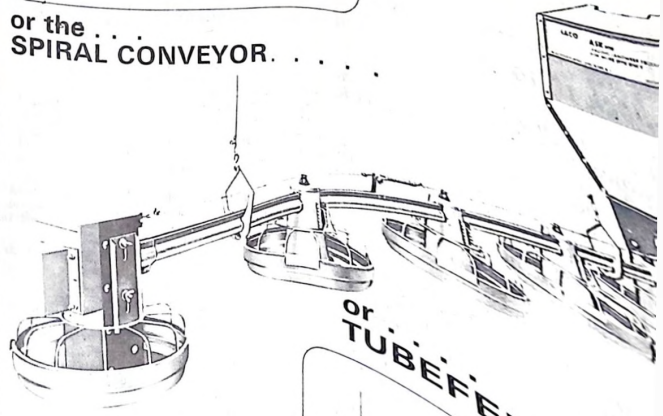
Alternatively eggs from birds tested for freedom from virusse of the complex by the COFAL test may be used to make the vaccines.

LACO more than 20 years of experience in the design and manufacture of poultry-equipment.

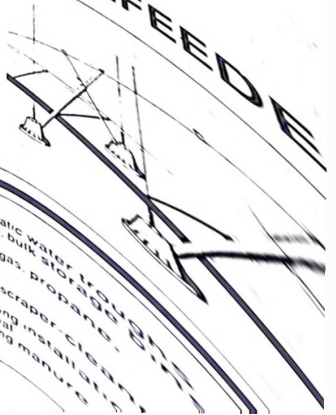


Whether it is for CHAINFEEDER INSTALLATIONS . . .

or the . . . SPIRAL CONVEYOR. . . . .



or . . . TUBEFEEDE



LACO is the SPECIALIST

LACO range of equipment for poultry

Watering	Round drinkers, height-adjustable and automatic water troughs
Feeding	Chain-feeder systems, overhead tube feeding, bulk storage bins, special dispensers for multi-tier batteries
Heating	Space heaters and brooders burning natural gas, propane, oil or petrol
Ventilation	Fans with speed controllers
Laying Cages	Stepped flat-deck or multi-tier batteries with scraper cleaning, glass bases or plastic belt manure removal
Rearing Cages	Flat-deck with troughs or overhead tube feeding, installation
Broiler Cages	Two tiers high with plastic belt manure removal
Manure Disposal	Reciprocal-action cross-conveyor for removing manure from the cage house

'NEPA' In The Service Of The Nation

YOUR GARDEN IS IN FOR A SHOCK

Pass an electric current through a plant, says an expert, and you can shock it to triple its yield in size and number.

When you buy a pound of foreign tomatoes at your greengrocer's nowadays they may have been picked from plants that have been given electric shock instead of being nourished on fertiliser.

After several years of experiments, a Sussex nurseryman has persuaded plant scientists that he can double his crop of tomatoes this way. Gordon Linfield is no wild enthusiast or crank. He has his feet firmly planted on the Sussex ground. He has been growing tomatoes for over fifty years near Worthing, but his great achievement is the mushroom growing concern he and his brother run.

In the little hamlet of Thakeham, a few miles inland from the holiday-makers' coast, they have built up, quite late in life, the biggest mushroom farm in Europe. Their mushroom beds cover many acres, and some 600 people are employed there.

Mr. Linfield has been compiling results from various seasons until now when he has a library of such records.

Inspiration

An article in a scientific paper gave him the idea. Wheat had been grown and ripened in Finland, he learned, within the Artic circle in a much shorter season than in England. And the reason for this was that the plants responded to an electrical influence which plants nearer the Pole receive and which makes it possible to grow monster cabbages there in a matter of weeks.

If wheat likes electricity, he thought, why shouldn't tomatoes? The commercial demand for them seemed insatiable. Perhaps this would be a way of increasing production.

He raised a batch of seedlings and divided them into two equal groups. One set he grew in the conventional way, repotting them into larger and larger pots as they grew and using a richer soil mixture each time. To the others he administered an electric shock as well as giving them the orthodox treatment.

Electric Charge

Metal plates were set in the soil at top and bottom of the pots and connected with an old induction coil, connected in its turn to a bicycle lamp battrey-just the kind of contrivance, in fact, one used to play with at boys' parties, trying to get a penny out of a bowl of water holding one metal handle from the coil while the other was submerged.

The plants thrived on it. As they grew, their foliage took on a richer green than their companion plants. Their root systems were much more vigorous.

"And if you get good root growth on tomatoes," said Mr. Linfield, "you get good crops."

Each picking from both sets of plants was carefully weighed and entered on a chart. The first results were encouraging and Mr. Linfield decided to continue the treatment until cropping ceased. So he then supplanted the bicycle-lamp battrey with current from the mains, running it through a transformer to reduce it to four volts.

"As I took out the sideshoots, he said, "sparks would jump to my fingers. I used to go into the greenhouse (unnecessary in the tropics-Ed) at night, and as the wind stirred the plants when I opened the door, sparks would fly off where the leaves touched. It was really very pretty".

Encouraging Results

If the equipment was improvised, there was nothing gimcrack about the results. In the first season the electrified plants gave half as much again as the untreated ones. Next year the difference was 'greater still.

Other growers whom Mr. Linfield told about his experiment were sceptical. Local electricity boards officials were mildly interested.

A third season's trials repeated the pattern, with still better yield as small adjustments were made in the technique.

"The fourth season," Mr. Linfield told me, "I decided to let them have their heads. I left most of the sideshoots on to crop and tied them in.

Treated plants gave an average of fifty-six lb. each against twenty lb. from untreated ones.

"I don't think I could do better. Someone else who understands the subject must thoroughly carry on from here".

Does he think the amateur gardener with a small space could provide more tomatoes for his family by this method ?

"I'm sure he could. I'm a complete amateur at this myself. But I wouldn't advise anyone to apply electrical current without skilled advice and inspection. I foresee the principle applied commercially, perhaps in specially-made insulated beds."

Asked if perhaps the same could have been achieved by feeding the plants heavily Mr. Lindfield replied.

"I don't think so," he said, my job is to get the heaviest yields I can for every square foot of space I have. I know how to feed up a tomato crop. My control plants we grow here for market. But for all the manure they had, they didn't flourish like the electrified plants. And we're not short of good manure in this part of Sussex," he added. Linfield's dung-moving machines handle 200 tons a day.

Farmstoc

Laugh!

On one of the glass panels of the main door into a large store, I encountered a small yellow sticker which read: "By the time you have finished reading this, you will have made an idiot of yourself going round and round and round and round in this revolving door".

× × ×

The fortune-teller, after demanding ₦10, told her patron that he was entitled to ask two questions.

"But isn't that a great deal of money for just two questions?" the man asked.

"Yes", acknowledged the fortune teller. Second question, please.

× × ×

Middle age is the time of life when a man can get exhausted simply by wrestling with his conscience.

× × ×

Money doesn't make a fool out of a man nearly as often as a girl makes money out of a fool.

× × ×

When a woman asks to see something more expensive she's shopping: when she asks to see something cheaper, she's buying.

× × ×

A gang of clever robbers was busy counting piles of banknotes—booty from a successful bank raid—when one of the counters gasping for breath muttered. "Stop counting, let's ring up the bank and ask how much is missing"

The Music had just stopped at one of those dances where each partner twists around individually as he sees fit. As a youth walked off the floor, a girl rushed up to him and thanked him for the dance. "I wasn't dancing with you," the young man hastily replied, "I was trying to get past you to the bar".

× × ×

A married man is a bachelor who didn't notice when a girl closed the escape hatch.

× × ×

One man used to spin a long wind tale about his invention of a marvellous life-like scare-crow. It was made of tin, he said, and not only waved its arms at regular intervals but emitted a loud yell every few minutes.

"Did it scare the crow," he was asked.

"Scare the crows?" he cried "I should say I did. Why, gentlemen, that contraption skeered the crows so bad that some 'ems fetched back corn they had stolen two years before".

× × ×

While he was finding accommodation near his new office in Bombay, a general's two daughters stayed temporarily at Delhi's well-known and some what expensive-Maidens Hotel. The general's communication staff were delighted when their commanding Officer received a signal reading. "SEND FUNDS URGENTLY OR CAN NO LONGER STAY MAIDENS".

LETTERS

USE LOCAL RAW MATERIALS

Dear Sir,

The rate at which industries are springing up in the country augurs well for the future. One may hope that unemployment will diminish as currency circulates evenly.

But one salient point that may elude the powers granting licences for the establishment of new industries is the duplication of business.

It is usual for our people to go the easy way.

As soon as a neighbour starts a line of business, all others will open up similar ventures and flood the market with similar wares while other items are not available.

It is in the light of such anomalies that it becomes expedient to specify what industries are wanted. The Government must not allow whims to play on the public.

Local raw materials should be considered first. More often than not now raw materials are brought from overseas.

Our farms are littered with a variety of raw materials which if absorbed by industries will boost our economy via employment.

A case in view is egg. It is one important ingredient in the making of paints. At the moment paints are brought in ready made in powder form. Our men do only the mixing. Our eggs should be good for the paints to adorn our houses.

LAGOS O. Oyinade

Editor's Note: We cannot agree more on these points.

PUT ME ON YOUR LIST

Dear Sir,

I came accross the FARMSTOCK a magazine for breeders' and farmers' while on a visit to a friend.

I was highly impressed as I read the contents hence I decided to write for it.

I enclose herewith a postal order to the value of two shillings (2/-) being a copy price as indicated on the magazine for the current publication.

I shall be grateful for your prompt attention. It will also interest me to have full information about the magazine and if possible to collect the previous ones.

On receipt of the paid for, I shall order for future copies.

Mr. A. O. Ogbonna
Rural Education Centr
P. M. B. 1010,
Umuahia, East C. St:

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*POULTRY
*FARM ANIMALS

The Veterinari and the farmer

THE VETERINARY SERVICES AS A PROFESSION, DEAL WITH DIAGNOSIS, PREVENTION AND TREATMENT OF ANIMAL DISEASES WITH DUE REGARD TO PREVENTING THOSE DISEASES OF ANIMAL THAT CAN BE TRANSMITTED TO THE FARMER.

These, in addition to efforts at improved animal husbandry, breeding and feeding, help the production of disease-free and high yelding animals.

The livestock farmer can then be sure of increased earning power while contributing his own quota to the development of the nation by supplying the much needed proteins, for improved national output and prevention of malnutrition.

THE SERVICES

The veterinary services open to the farmer include:

(a) Specific treatment of diseases of animals other than man.

(b) Routine vaccination of livestock, pets, and poultry against such high killing diseases like Rinderpest (cattle plague), Rabies in dogs and Newcastle disease of poultry.

(c) Production of healthy animals capable of producing good hides and skins for a better leather industry.

(d) Meat inspection to prevent man from eating such diseased meat from which diseases like tuberculosis, contagious abortion (brucellosis) and pork tapeworm may be acquired.

DISEASES

Perhaps, the greatest parasitic killer of cattle in this part of the world is a blood parasite called Trypanosome which is carried from one animal to the other by the tsetse-fly.

This parasite causes the sleeping sickness of cattle called "Nagana". The veterinary services are working hard to eradicate this disease.

Other diseases of interest in this part of the world which are important in livestock rearing for profit

Rinderpest (cattle (Undulent fever),

Mastitis in diary cows,

Contagious ovine pleuro-

Foot disease,

Erysipelotnricosis,

Coccidiasis,

Newcastle disease and

Babesiosis.

My lady shouts for eggs only always .... but for the Vetma

LIVESTOCK

A recent responsibility the vets involves t commercial culture of fi in many countries. Tho sands of pounds of fi are being harvested f human consumption fro these pounds,

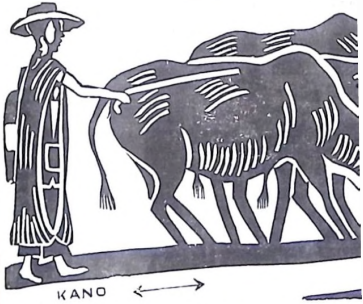
The dairy farmer stands t gain and obtains maximu level of milk productio from the cows when th udders are free of disease The beef farmer is helpe

an Ser

They give me rubbish; but the vetman insists on a goc diet for me

to produce the best animals with ideal beef conformation and marketable appearance by regular deworming exercises and by active control of man debilitating diseases.

Poultry farmers are helpe by protecting the bird



October '74 *I take a lot of beating even when grazing,*

THE NSDO: A UNIQUE SEED MARKETING ORGANISATION

by Ronald Webber.
a London horticultural journalist

Britain's National Seed Development Organisation (NSDO), a body which acts as marketing agent for new crop varieties produced by 14 State-aided plant breeding stations, is not only unique in its field but is also profing to be an all-round success.

NSDO was set up (at Newton Hall, Cambridge, eastern England) to ensure that the products of the State breeding stations should also be eligible for protection and so avoid unfair competition with commercial breeders.

At the same time it was expected to provide a return to the taxpayer on the public investment in this aspect of research.

Run Commercially

NSDO operates on commercial lines and aims to secure the best possible return for its activities consistent with maintaining high standards and the reputation of State-bred varieties.

Its policy is to promote within the United Kingdom and overseas the use of these varieties. It is a link through which the products of research are transmitted to the industry.

It is responsible for multiplying, promoting and marketing new and existing State-bred varieties, licensing, collecting royalties and sponsoring the testing of varieties at home and abroad.

It is also involved in the patenting of plant breeding techniques evolved at the research stations and in the licensing of their use.

Limited Production

Production at the NSDO is normally limited to the growing of the basic seeds and plants of the varieties for which it is responsible. These are then sold to the seeds and nursery Industry for further multiplication to produce seeds and plants in the quatities and quality required by farmers and growers.

NSDO is in a very healthy financial position. United Kingdom income for 1972—3 was N£140,000 for sales of basic seed and N£50,000 for royalties, compared with the previous year's figures of N£80,000 and N£5,000 respectively.

The largest proportion of royalties at present comes from cereals, particularly from the Maris varieties of winter wheat bred at the Plant Breeding Institute at Cambridge. These last year won for the Institute a Queen's award to Industry, the first time this has been awarded for plant breeding and in itself a recognition of the value of these high-yielding wheat varieties in helping to combat the current world grain shortage.

Significant for the future is the fact that one of the most popular of the varieties, Maris Huntsman, has been added to the French variety list - the first British - bred winter wheat to be so approved. It is important because France is the largest cereal producer in the European Community and if Maris Huntsman gains commercial acceptance it will become a major source of foreign royalty revenue.

Grass And Glover Breeding

With a worldwide shortage of gra and clover varieties the NSDC is doing all it can to encourag breeding in this sphere. An initia release has been made of Sabo a fine bent-grass produce by tre Welsh Plant Breeding Station, the first British variety to be put into commerce.

In potatoes, Stormont Enterprise a main crop variety bred at the Loughall Station of the Ministy of Agriculture for Northern Ireland and which offers resistance to spraying, a serious disease on certain is being marketed.

In fruit, the raspberry Glen Clova from the Scottish Horticultural Research Institute at Dundee is already grown extensively on a commercial basis in Scotland.

Other fruit includes two apples (Malling Kent and Merton Knave), two blackcurrants (Blackdown and Malling Jet), three more raspberries (Malling Admiral, Malling Delight and Malling Orion) and four strawberries (Marmion, Merton Dawn, Merton Ruby and Montrose).

Vegetable Varieties

Vegetables include new varieties of Brussels sprouts, celery lettuce, parsnip, red beet, tomato, cucumber, bean, cauliflower, cabbage, marrow, swede, forage rape, fodder radish, oil rape, sugarbeet and rhubarb.

For 1974 NSDO has taken a new step in that it is offering to private gardeners a few of the vegetable varieties which up till now have been available only to commercial growers

It is doing this through the British Group of the International Garden Centre Association whose 110 members throughout Britan will provide the outlets.

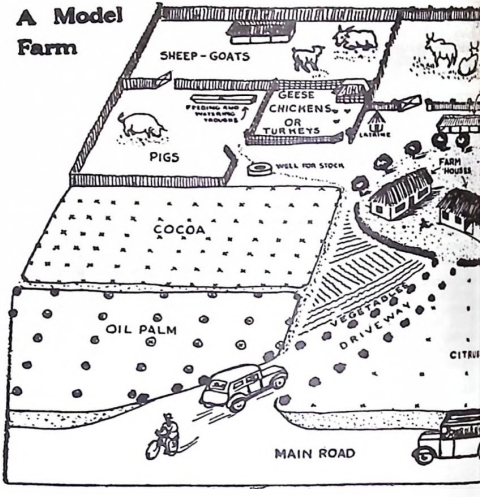
Overseas Expansion

An association has been formed with the Royal Botanic Garden at Kew, London, to develop some interesting hybrids of aloe which, it is considered, will make excellent houseplants. And streptocarpus bred by the John Innes Institute at Norwich, eastern England, and Regal lilies from the Scottish Horticultural Research Station are also being handled.

Overseas trading is expanding steadily, particularly in Denmark, Ireland, France, Belgium, Sweden, Netherlands, Poland, Hungary, Austria, Switzerland, Federal Germany and Italy.

Besides the Maris Huntsman winter wheat for France already mentioned, Maris Templar winter wheat has been accepted by Denmark, two winter oats, Maris Quest and Peniarth, have received approval in Switzerland for use in the milder areas and Mostyn spring oats approved in Belgium. Maris Kestrel kale and the Timothy grass Aberystwyth S50 have been put on the Swedish official list and Nevin forage rape added to the Federal German list.

In addition to submitting varieties of all species for official tests in many countries, NSDO is actively collaborating with many private companies overseas for testing of varieties and of possible subsequent commercial development of those varieties which show promise.



WHA
COLLECTI

by Y.

There are some 30,000 collective farms in the USSR. A Soviet collective farm is based on voluntary amalgamation of working peasants for jointly conducting large-scale social production on the land belonging to the state.

Every collective farm has its own Rules drawn up on the basis of the Model Rules of the Collective Farm. The present Model Rules were approved, after a nation-wide discussion, by the Third All-Union Congress of Collective Farmers in 1969. Thus a collective farm presents a comparatively independent self-governing system where the collective, on the basis of the collective farm Rules, makes its own decisions on basic problems concerning production, social and cultural life. A collective farm develops production on the basis of the plan approved by its members.

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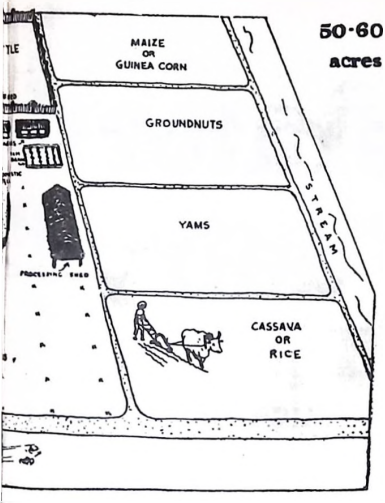

IS A
E FARM?

yev

llective farm is a self- al system, a collection jointly own the basic duction.

lective farms managed? inform the collective produce purchase plans ed procurement prices. ate via the produce purchase plans, contracts price-formation and a system of bank credits regulates and provides incentives for the activities of collective farms. At the same time the collective farmers, on receiving from the state an order-plan for the sale of one or other type of farm produce, decide what crops should be sown, the area under them, what livestock should be bred, plan the volume of production, expenditure, receipts and the distribution of the income. Thus centralised guidance is combined with the initiative and independence of an individual collective.

By providing collective farms with plans-contracts for the sale of produce the state at the same time sees to material basis for their fulfilment: It also plans the delivery of farming machines, mineral fertilisers, building materials, etc.

How do collective farmers run their socialized production? The bodies of collective farm self-administration include the general meeting of collective farm members, the collective farm board, its chairman and the auditing commission. The general meeting is the highest managerial body: it has both administrative and executive functions: its decisions are obligatory for all collective farmers.

A general meeting elects the board, the chairman of the collective farm and the auditing commission for a three-year term.

The chairman of the collective farm in his daily activities carries out the will of the general meeting and the board. The position of chairman is be a responsible job to which the most experienced and educated collective farmers are elected. Today more than 80 percent of all collective farm chairmen have a higher or secondary education.

Big-operator small dairy

A British farming magazine and four farmers have joined forces in one of the most ambitious experiments in co-operation over undertaken in British agriculture.

by **MICHAEL WILLIAMS**
"Farmers Weekly", London

The experiment is dairy unit for 600 milkers, with an option for expansion to an eventual total of 1,000 milkers. It has been planned and developed to investigate a possible system of milk production for the future, and take advantage of the Government finance available in Britain for co-operation in farming.

It is called a cotel a kind of cow hotel.

But although the project is pioneering new ideas, it must also be strictly commercial.

All five partners are risking substancial investment and are expecting a worthwhile economic return.

Advanced Techniques

The magazine, "Farmers Weekly", runs a total of seven commercial farms. These are used to investigate advanced techniques of production, and between them, these attract thousands of visitors a year.

Asclin Cotel, the new giant dairy unit, is another step in the same direction. Many farmers in Britian are expecting more difficult economic conditions in the future, especially for dairy farming.

Production costs are rising steadily, especially the cost of labour; (and labour itself is becoming scarcer), while product prices are remaining remarkably stable

Two types of farm are widely considered to be best placed to meet this trend. These are the efficient smaller units with 40 to 70 cows, where capital investment is low and family labour is used substantially, and, at the other extreme, very large units which can afford professional management and can benefit from economies of scale.

Co-operative farming enterprises in Britain are more of a novelty than in some European countries. This is partly because the average size of farms in Britain, at about 70 acres (28 hectares) has produced a less crucial small-farm problem.

"Farmers Weekly" decided that co-operation in diary farming could give a number of farmers a share in the advantage of large-scale operation. The idea was suggested to a group of farmers near the Buckinghamshire village of Aston Clinton, an area in which the magazine was already running a dairy farm.

Four of these farmers were keen to co-operate and agreed to the Asclin Cotel.

Farmstock

benefits for farmers

Right Employment Conditions

"We chose to work together because we feel that only in this way shall we be sure of securing the resources of capital and management that will make us competitive in the future," said an article in "Farmers Weekly" announcing the project.

"This will allow us to offer conditions of employment similar to that of our industrial neighbours. Diarying on our own farms offers us less scope for expansion in the longer term."

The four farmers who joined the partnership nearly two years ago are Mr George Hammond, who produced milk from nearly 450 acres (180 hectares,) Mr Tom Blundell with 300 acres (120 hectares), Mr. Tony Mogford who grows mainly corn on 350 acres (140 hectores), and Mr. Sidney Parsoos, rearing calves and producing beef from 80 acres (52 hecares).

Each of the partners, including the magazine, agreed to contract part of their land to the cotci to make a total of 500 acres (202 hectares) to produce bulk feed for the herd.

For each acre he contributed, the partner also supplied ₦200 (hectare he contributed, the partner also supplied ₦494) towards the capital required, from his own resources.

₦420,000 To Start

An initial estimate of the total capital requirement for the unit for 600 cows, including working capital until an income was created, was ₦420,000.

Of this the partners' acreage payments supplied ₦100,000 bank loans found a further ₦200,000, and the balance was supplied by a grant from the Goverment-financed Central Council for Agricultural and Horticultural Co-operation.

The first estimate has since proved to be too low, partly because of cost increases, but also because of delays and difficulties over planning permission from the local authorities. A further ₦140,000 was raised, partly by a further grant from the Central Council.

The cotel's 500 acres (202 hectares) are scattered over five farms in a radius of more than five miles (eight kilometres) from the central unit.

This has meant that a zero-grazing system had to be used, with most of the feed brought into the housing unit. Similarly manure has to be removed for disposal on to the land.

A site for the housing and milking unit was purchased near the edge of Aston Clinton. This was convenient because it was central, and also because electricity, water and roads were all available.

Public Meeting

Local residents objected strongly to the development, fearing noise, smells, fly nuisance and dirt. To meet this hostility the partners organised a public meeting in the village at which the project was fully explained.

The meeting helped to dispel some of the objections, but some resentment has survived, and this persists in spite of the extra business which the cotel has brought to local tradespeople and the attractive jobs it has created.

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small dairy farmers

One of the effects of the local objections was to delay the planning permission required for the cotel. Heifers and cows were bought in the spring of 1968 and early summer to calve down in the following autumn when the buildings were due to be completed.

But completion was delayed for five months and during the period the partners had 600 cows to milk in inadequate and makeshift units on their own farms.

Partly because of special feeling, special regulations were laid down for operating the cotel. The storage of manure and silage on the site is forbidden (adding to the transport problem), work at night is not allowed, except in an emergency, and liquid manure can be removed from the site only in an enclosed container.

Special Trailers Banned

To streamline the transport problem, the partners had planned specially-designed trailers which could be used to haul slurry from the cotel centre to the farms. The trailers could then be washed with a power hose and loaded with silage or fresh-cut material for the return journey.

The regulation requiring the use of an enclosed trailer for slurry transport made this impossible. Instead, self-unloading bulk trailers are used to bring feed into the unit.

These discharge into feed bunkers inside the houses. Slurry in the houses is scraped into a channel covered by a steel grid, to drain into a below-ground holding chamber. From there it is delivered by auger into a 1,750-gallon (7,960-litre) capacity tank mounted on a four-wheeled trailer.

The trailer is used to spread the slurry direct on to arable land when this is possible, or on to pasture. When ground conditions are too wet for spreading, the slurry is delivered directly into storage lagoons.

Roofs Reflect Heat

The cows, 400 Friesians, Ayrshires and Friesian-crosses, plus 200 Jerseys for quality milk for retail sales, are housed in three buildings, each 214 feet (65 metres) long by 66 feet (20 metres) wide. The buildings have wooden-clad walls, and roofs of aluminium sheeting to reflect heart and reduce the weight to be carried by the framework.

Each building has 200 cubicles made of timber, and the cows are bedded on sawdust, which is less expensive than straw, keeps the cows very much cleaner and provides less bulk to be carried as manure.

Each building can be subdivided, and the cows are housed according to yield and stage of lactation so that feed can be used according to production. The concentrate ration, fed mainly in the housing rather than in the parlour, is a highly-mineralised barley-based pellet to supplement fresh feed, and a 16 per cent protein nut for production when silage is fed.

Cropping is designed to give a long cutting period, and to provide the yields needed to supply 600 cows from 500 acres (202 hectares). It starts with rye in early spring, continues with ryegrass leys, and finishes about seven months later in early November when the last of the maize is cut.

Short Of Target

The original target set the cotel was a yield a rage of 1,000 gallons (4,5 litres) a head, to be ach ved within two or th years of operation.

The milking difficulties c ring last winter, and t fact that more of the co will have to be culled f yield than was anticipat mean that yields for t first full year are likely be lower than had be hoped for, and the avera is likely to be well und 750 gallons (3,409 litres

Policy decisions for the cot are made at meetings the partners. They a put into effect by a gen ral manager, who has u der him two managers one to look after cro production and the othe in charge of livestock.

The diary herd is operate by a seven-man staff, wor king a five-day week. Each day two men are off work two are looking afte slurry handling and fee ding, including transport and three are milking Calves are reared by separate staff on one of the partners' farms.

The milking parlour a part of the cotel which attracts particular interest from visitors, is a herringbone unit with 36 stalls and 18 units – believed to be the largest of its kind in Britain

The design was chosen in preference to mechanically rotating parlours because of cost, mechanical reliability, and because of the large amount of favourable information available on herringbone parlours used with very large herds, particularly from New Zealand.

An observation platform has been installed for visitors, equipped with one-way glass windows. This allows people to watch the milking operation without disturbing the cows.

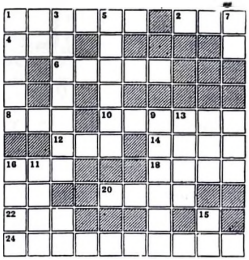
Extendible stalls

Special equipment in the parlour includes acid circulation cleaning for the milking units, calibrated glass milk jars installed at operators' eye level to make yield recording easy, disposable paper towels for hygiene and spray nozzles using warm water for under cleaning.

The parlour itself was deliberately designed with extra length to make adding extra stalls and units easy if required. Any new installation will now be possible without disturbing the regular milk routine.

A target for performance in the parlour was originally set at 50 cow per man-hour. The rate has been frequently exceeded and is now the accepted standard for the unit.

FARMSTOCK PUZZLES



CLUES ACCROSS

1. Latin name for GOAT (6)
2. UNITY (3)
4. Indian Chief (3)
6. Bulgarian City (5)
8. Tu (Italian word) (3)
10. Dele e (6)
12. POUN DOWN (3)
14. Over (actual) (4)
16. Look (3)
18. Uncommon (4)
20. Simpleton (4)
22. Donkey (3)
24. Oldest man in the Bible (10)

CLUES DOWN

1. WILD (5)
3. STANCE (7)
5. SENILE (6)
7. Elizabeth Reign (abbrev) (2)
9. SAD (6)
11. PLEASURE (4)
13. Almost round (4)
15. Master of Arts (abbrev) (2)
16. Line of sowing (4)

RESULTS

Results will be published in our **November**, edition.

BREEDING TOMORROW'S GRASSLANDS

by

JOHN PARRY

Crop specialist of "Farmer & Stockbreeder" London

After a decade of diligent breeding under the directorship of Professor P. T. Thomas (who retires later this year), a stream of high-perfomance grass varieties is now beginning to be released by the Welsh plant breeding Station.

Apart from their superior performance, these new varieties are important because of their potential value to many countries.

The station was established in 1919 and in its early days was run as a research department of the University College of Wales, Aberyswyth.

While still maintaining this status, today the station is fully-aided by the Agricultural Research Council. It has an annual budget of £1,600,000 and a staff of 200 - 150 of whom are scientific,

BARLEY RESEARCH

Breeding work is not confined to grasses Clovers, fodder crops, cereals and pulses are also produced. Recent introductions include the cereal rust-resistant spring barley Sabarilo, the nitrogen-tolerat white clover Sa-reed and the spring field bean Dafila.

Among fundamental research being carried out in the cereals section under Dr Desmond Hayter a major activity concerns hybrid barley which, as in hybrid wheat, can exhibit a considerable degree of heterotic vigour. One objective has been to develop a genetic system to produce enough seed from a number of F1 hybrids to allow for bigger trials.

Male sterile composites from the world collection have been used in this programme to achieve higher levels of cross pollination under field conditions. Sources include Dr R. T. Ramage of Arizona, USA, and Dr E. A. Hocket of Montana, USA.

An equally novel activity is the development of a new breeding technique using other cultures. The aim is to produce "haploid" plantlets from cereal pollen grains and one problem encountered so far was the difficulty of finding a suitable growing medium.

QUICKER BREEDING

But if all goes well it may soon be possible to produce homozygous plants quickly and directly from pollen grains. This will enable the breeder quickly to incorporate desirable characteristics into his plant material.

To return to grass, the station's traditional research subject, as with the cereal department, much of the work is fundamental. An example is the work of Dr. J. P. Cooper, who has been pushing grass to the limits of its production to find the ultimate yield potential and the limiting factors. The trial results are often based on data provided by just one extremely well fed, intensively monitored leaf

LIGHT FACTOR

The overall limiting factor to grass production in Britain is the seasonal input of light energy, which varies ten-fold between winter and summer - from

row 30 to over 500cal/cm2 of total diation per day.

Dr. Cooper has found that at low ght intensities, the photosynthetic tivity of both the individual leaf id the canopy are low, corresponding a daily dry matter production of ss than 2g/m2 of leaf surface, lthough the efficiency of convertion f these low light inputs is comparatively high (12% - 15%).

As the light intesity increases, the hotosynthetic rate increases also but in most temperate grasses, particularly in northern Europe, the ndividual leaf reaches light saturation at 20,000 - 30,000 lux, which is only about a third of full summer sunlight.

Further increase in light intensity has little or no effect on photosynthetic rate, so that during the high light intensities of summer, the individual leaf is able to convert only 1% -2% of the incoming light energy, corresponding to a maximum daily dry matter production of 10g/m2 of leaf surface.

LESS INTENSE

In the crop canopy - as opposed to the individual leaf - the incoming light transmitted and reflected down the canopy and consequently spread over a much larger leaf area, often up to a leaf area index of 7-10. As a result the average light intensity falling on each unit of leaf area is less and light saturation of the crop is reached only at much higher intensities of incoming radiation.

Under summer conditions in Britain crop growth rates of over 200kg/hectare per day, corresponding to over 5% conversion of light energy, are not uncommon. With young vegetative canopies growing at high light intensities values of over 400kg/hectare have been reported.

It is possible therefore, according to Dr Cooper, to develop predictive models of the potential photosynthesis or crop growth rate of the closed canopy. At complete light interception throughout the year, values of over 20 - 40 tons/hectare of dry matter per year have been estimated.

Maximum production is not the only characteristic on which the breeders are working. Their philosophy is not breed grasses for particular farming systems, not just for high yield. The result is the stream of new grasses designed to produce more milk or beef per acre, rather than more dry matter than other varieties.

One of the most interesting o these grasses is Sabrina - tetraploi hybrid from a perennial and an Itali ryegrass cross. Each spring a early summer it exhibits all the c acteristics of a tetraploid Italian from late summer onwards and winter, it becomes a vegetative nial type.

Another new variety is tetraploid Italian ryegrass superior in yield, persistency tability to its competitors. Not yet released are cock exhibit many characteris perennial ryegrass. They renowned persistence cocksfoots but without th backs of low digestibili Many of the most Brit on trials in North Amer and in New Zeal soon find a place word's temperate

PUTTING ANIMALS ON

"THE PILL"

FAMILY PLANNING IS BY NO MEANS CONFINED TO HUMAN BEINGS THESE DAYS. IN BRITAIN VARIOUS FORMS OF "FAMILY PLANNING" OR BREEDING CONTROL OF ANIMALS ARE WIDELY PRACTISED, EITHER FOR ANIMAL WELFARE OR ECONOMIC REASONS - OFTEN FOR BOTH.

by
Peter Bullen
Agric Correspondent of "THE DAILY MAIL" London.

The most recent form is the introduction of an oral contraceptive for dogs - a birth pill which has many advantages. It is the first satisfactory oral method of birth control found for animals, and as there are some 4,000,000 dogs in Britain it has enormous potential.

Unwanted Puppies

Perhaps its most important function will be to prevent the birth of many thousands of unwanted puppies – the result of unplanned mating - that are destroyed every year soon after they are born.

The pill suppresses "heat" and the often distressing and inconvenient problems it brings. It also prevents conception should mating occur.

Giving the course of treatment to a bitch enables the owner to control her breeding and to space her litters. A longer course will postpone "heat" to avoid interference with holidays, travel or dog shows.

As the pill has a yeast base it is readily eaten, and tests on 250 bitches before it was marketed confirmed that it had no serious side effects. However, correct dosage and administration are vital, and because of this the pill is available in Britain only through veterinary surgeons.

Ovarid, Glaxo's new contraceptive pil. for dogs, being administered to an Alsatian bitch.

Sponge Pessary For Sheep

On farms, synthetic hormones to control breeding in sheep have been used for two years. A device was first marketed in April 1967 after tests on 5,000 ewes from 18 different breeds had shown that 'family planning" could make a valuable contribution to sheep rearing in some conditions.

The device is a small sponge pessary, impregnated with the hormone, which is placed inside the ewe's genital tract and enables the shepherd to plan the breeding of the flock with precision.

All the ewes can be persuaded to mate and eventually to lamb at the same time, so that lambing lasts for a few days instead of straggling on for weeks.

For countries which have a large sheep population, particularly if artificial insemination is being used, the ability to control the breeding pattern of ewes could be very beneficial.

Apart from the value of condensing mating and lambing times and making the breeding pattern more predictable, the method has another advantage in countries where sheep are reared for meat. It enables the breeding season to be brought forward by several weeks so that the lamb crop arrives before the traditional time.

As early-season lamb prices are generally the highest it could pay some flock owners to be first to market with their lambs. Of course, if everyone switches to early marketing the advantage rapidly disappears.

More Rams Needed

Results with sheep have been inconsistent in Britain, probably because of the large number of different breeds — there are more than 40; but there would not be such a drawback in countries where there are fewer breeds.

The technique of controlling or synchronising oestrus or "heat" in ewes also makes it necessary to have one ram for every ten to 20 ewes.

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"THE PILL"

Again, this is not typical in Britain, where one ram to 40 or 50 ewes is generally felt to be sufficient.

Where it is not economically possible to have more rams, and they cannot be borrowed or hired, artificial insemination (a.i.) may become more popular. This is particularly likely where a breeder wants to make use of top quality rams to make a rapid improvement in his whole flock.

It has always been the most obvious advantage of A. I. that it enables a small number of top quality male animals to be used on an exceptionally large number of females, with often startling results. More meat, milk or wool can be obtained in a reasonably short time by herd or flock improvement through A. I.

Pressure on output

Control over the female's breeding cycle makes A. I. even accurate and effective, and it should lead to increased use of both techniques as world-wide pressure grows to increase farm output and productivity.

The same pressure is forcing livestock production in many countries to become more intensive, with vast numbers of animals being housed and fed on fewer and fewer acres (hectares).

In these big beefiots and milk "factories", or in the large pig production units, controlled breeding could enable farmers to utilise their labour, machinery and buildings even more effectively. Synchronisation of cattle mating (either natural mating or through A. I.) and calving, could be timed to achieve maximum output of milk or beef at the period when market prices are the most attractive.

At present there are no "birth pills" or other control devices for cattle on the market in Britain although several of the major pharmaceutical firms are working on the project.

No Problem With Pigs:

In pigs there is not the same need for artificial control of breeding in adult sows, as oestrus can be regulated very successfully by weaning groups of sows on the same day. About 80 per cent will exhibit oestrus within four days.

In gilts there has been difficulty in spotting the correct time for a. I. but this problem has been overcome by a compound given in the gilt's feed to control oestrus.

The makers have also produced a similar compound which, when given to poultry, stimulates the birds to moult by controlling ovulation.

Manufacturers referred to: Ovarid pill for dogs – Glaxo Laboratories Ltd., Greenford, Middlesex.

Syncro-Mate for sheep – G. D. Searle and Company Ltd., Lane End Road, High Wycombe, Buckinghamshire

Pig and poultry compounds – Imperial Chemical Industries Ltd., Millbank, London, S. W. 1.

A general view of one of the departments of the Zarya poultry farm in the Krasnoyarsk Territory (Siberia)