

**THE
NITROGEN
STORY**

**KEY TO BRITAIN'S
SICK AGRICULTURE**

KEY TO

BRITAIN'S SICK AGRICULTURE

£140_{M.} ANNUAL CHEMICAL FERTILIZER BILL

NEEDLESSLY EXPOSES

BRITAIN TO:

ANIMAL MEDICATION COSTING £20_{M.}

HUMAN PHARMACEUTICAL SERVICES £154_{M.}

BREAD WHEAT IMPORTS COSTING £200_{M.}

THERE IS AN ALTERNATIVE!

BOARD ONE

MANY who know "CHEMICAL FARMING" is wrong – still believe it is the ONLY economical way today!

We would like to ask you – just what is "economical" about a system where ARTIFICIAL FERTILIZERS cost the British Taxpayer £30 million annually, and the Farmers £110 million?

Chemical fertilizer, costing the nation £140 million per year, helps to grow 13 million acres of grain – of which NOT ONE BUSHEL is fit for BREAD-MAKING.

Even £140 million of chemical fertilizers won't grow QUALITY FOOD! So then Britain spends a further £200 million buying in wheat that IS suitable for bread-making.

The food from this system is not very good for animals either, and part of the added cost of using it is a £20 million annual bill for animal drugs.

Britain's loss of £150 million through the 1967/1968

Foot and Mouth epidemic, is some indication of the wisdom of relying on chemical fertilizers and drugs to overcome POOR SOIL FERTILITY!

Pharmaceutical services for humans also cost the nation £154 million last year. Undoubtedly much of this expense can be chalked-up against our WRONG FARMING system, and that's only a FRACTION of what this nation loses annually through human sickness and disease!

Despite the facts outlined above, farmers still look to science and the chemical industry to meet their expanding nitrogen needs.

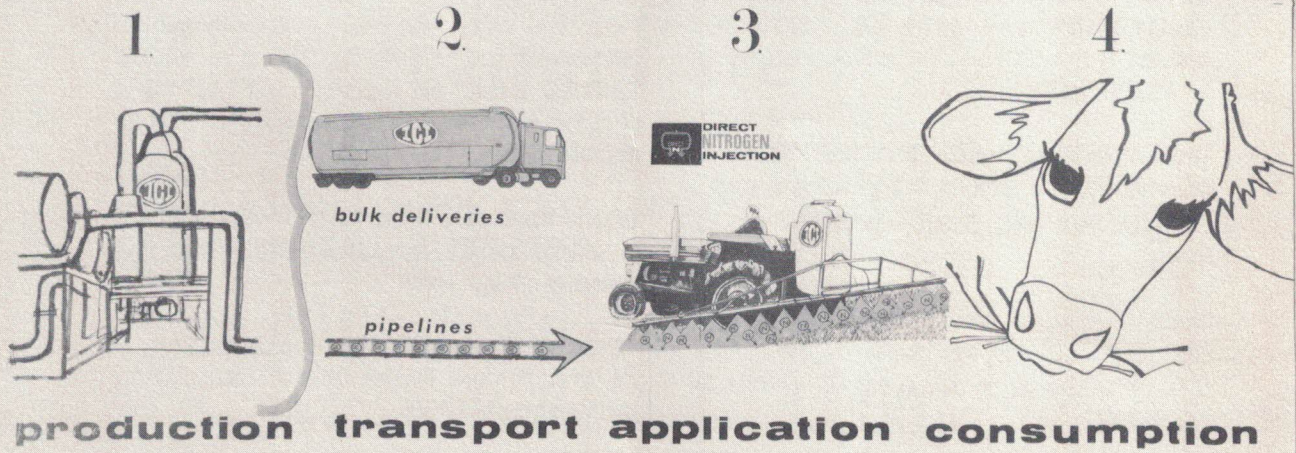
"SHORTAGE" of NITROGEN is often regarded as the greatest single limiting factor to increasing the world's supply of FOOD!

Other than this acute "shortage" – what is it that makes NITROGEN so important anyway?

NITROGEN is the building block of PROTEIN and availability of protein is the most important factor

STEPS REQUIRED FOR

CHEMICAL FERTILIZER USAGE



BOARD TWO

limiting man's efforts to nourish himself and his animals!

The Agriculture Research Department of Ambassador College, Bricket Wood, is now pleased to present you with the truth about man's efforts to secure his NITROGEN requirements.

This folder has been prepared as a simple guide to help you appreciate - TWO DIAMETRICALLY OPPOSITE SYSTEMS of food production. Assess the situation for yourself.

We think you will find the contrast most striking!

Now, please proceed on through the display. The yellow boards demonstrate the workings of this science-devised system that creates more problems than it solves!

The green display boards, contrast the simplicity of the wonderfully designed system we SHOULD be following. (You will note that it is a completely natural process and the exact opposite of accepted agricultural practice today.)

CHEMICAL FERTILIZER USAGE

Steps Required For:

CHEMICAL FERTILIZER USAGE

1. Production

2. Transport

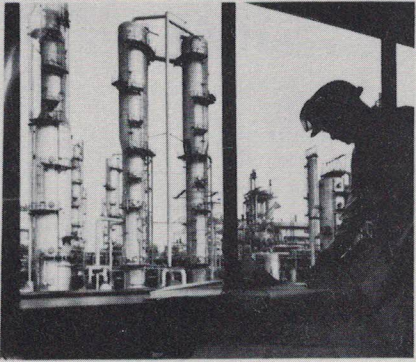
3. Application

4. Consumption

These four stages make up the main sections of this gigantic industry. From their sheer size and complexity you will begin to appreciate how much better off mankind would be if a simple alternative system were available!

1

PRODUCTION

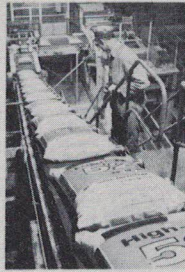


A NEW U.K. NITROGEN FERTILISER FACTORY producing one million tons annually

TECHNOLOGY'S EXPENSIVE SUBSTITUTE



65,000,000 TONS of commercial fertiliser produced annually.



2

TRANSPORTATION

fertiliser pipeline



major food production areas in U.S.A.



3000 MILES of anhydrous ammonia pipeline specially constructed between mid-west and factories in Texas.

BOARD THREE

1. Production

With worldwide total production now at 65,000,000 tons, gigantic factories are now springing up throughout the whole of the Western World.

Some of the most recently erected Nitrogen Fertilizer Plants in this country, such as the one displayed, have capacity exceeding 1,000,000 tons per year.

Look closely at our picture of this gigantic industrial complex. Would it not be a blessing to mankind if we could grow our food without this multimillion pound investment?

You would certainly think so if you had to live anywhere near its belching chimney stacks as they pollute the air above thousands of surrounding homes.

2. Transport

The chemical system depends on a vast network of road, rail and sea transport to move the fertilizer from factory to farm.

This operation is just one small part of the artificial system of food production. However it is so costly that manufacturers on the Gulf of Mexico have decided that pipelines are "cheaper" than conventional transport.

They will carry SEVEN MILLION TONS (which equals all present U.S. usage) to just ONE section of American farmland.

Can you begin to imagine the staggering cost of the pipelines - THREE of them, each a THOUSAND miles long?

3. Storage and Application

Expensive means of dry or liquid storage must be provided at all points from the factory to farm.

Seasonal demand makes storage a costlier problem. Manufacturers and distributors must stockpile vast quantities of fertilizer against sudden demands by thousands of farmers.

Application is the next expense in the chemical sys- ___

COSTLY

STORAGE

FACILITIES

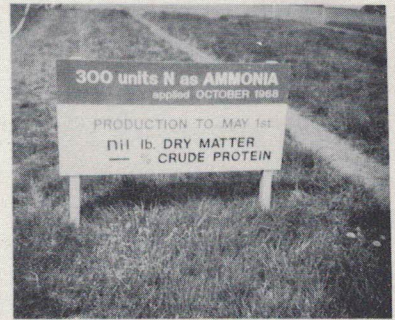
£\$!



BULK STORAGE



warehouse filled with fertilizer bags



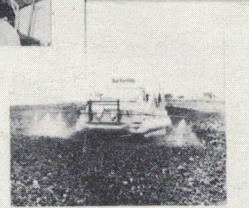
before chemical fertilisers reach the soil the farmer must pay the price for storage, transportation, distribution and expensive application.

APPLICATION

3



application equipment takes many forms - all expensive



BOARD FOUR

tem. Here machinery manufacturers and engineers have cashed in on chemical fertilizer usage to gather an extra share of the farmer's profits.

The following list indicates the fantastic range of application equipment that is available:

Broadcasters

Direct-Drop Spreaders

Grain/Fertilizer Drills

Boom-Sprays

Liquid Soil Injectors

Gas Soil Injections

Hovercraft

Light Aircraft

Helicopters

BOARD FIVE

Do we need this dazzling display of engineering accomplishment in order to produce our food?

4. Consumption – and Results!

Stages 1, 2 & 3 are notable for their fantastic cost and complexity. NOW COMES THE PAYOFF!

What is the produce like? Is it good? Is it filling our barns and larders with an abundance of flavour-some, health-giving food?

How about our priceless heritage – THE SOIL – is it being guarded and maintained for our children and grandchildren?

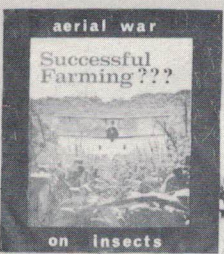
See the answers for yourself on this board. These pictures speak for themselves.

What a distressing story they portray of disease and sickness in soil, plants and animals!

And who would ask you to believe that this pitiful

FERTILISER CONSUMPTION

AND THE RESULT



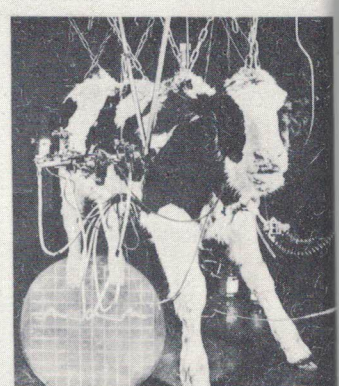
£325m. of pesticides used last yr. in U.S.A. alone



Treating sheep for worms



FOOT & MOUTH cost Britain £150m. in 1 yr.



ADVANCED SCIENTIFIC EXPERIMENTAL

A HELPLESS CALF PIERCED THROUGH WITH ELECTRODES AND RODS



FERTILISER produces low-protein food, which causes diseases in animals



Due to BAD DIET, 30 percent of British beef LIVERS are DISEASED

an unbalanced soil produces unhealthy plants, animals and people. but when natural laws are obeyed there are no pests, plagues or diseases.

BOARD SIX

story does not carry right on into humans?

How would you like to find an alternative system that meets ALL the following requirements:

SIMPLICITY

ECONOMY

QUALITY

QUANTITY

And at the same time, it must be both non-polluting, and in complete harmony with our environment.

Sounds like quite a task doesn't it? On the GREEN display boards that follow, the Agriculture Research Department presents the ONLY system that fits these requirements!



RIGHT SYSTEM OF SOIL FERTILITY

Farmers worldwide have been falsely educated to think they are desperately short of NITROGEN.

The millions they spend annually on ARTIFICIAL FERTILIZERS is proof of this erroneous belief! Farmers fail to realize there are 35,000 tons of atmospheric NITROGEN above every acre on the face of the earth.

~~From this inexhaustible supply, the average crop needs only 50lbs.!~~ But nitrogen from this FREE source is available ~~only~~ to the man who is willing to get in harmony with nature.

How does the system operate? Every farmer MUST grow LEGUMES. This is no hardship. It is a unique chance to HAVE YOUR CAKE AND EAT IT TOO.

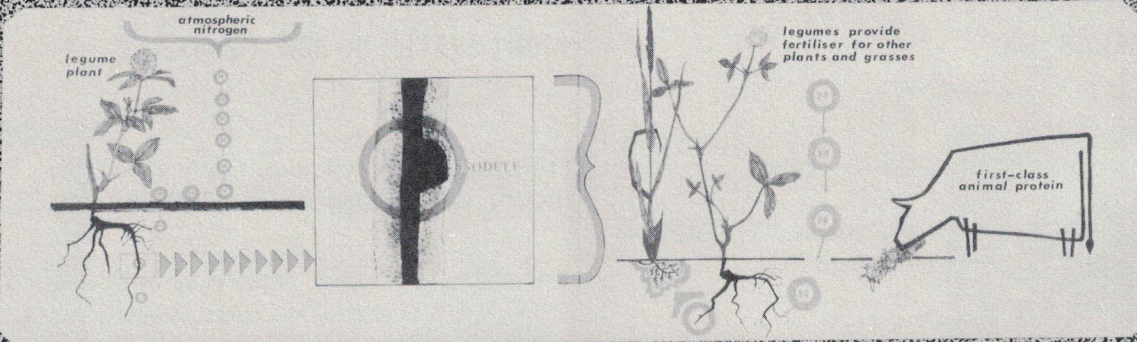
Yes, hard to believe, but it's true! As well as providing FREE nitrogen for the next crop, leguminous plants are man's highest source of top-quality vegetable protein!

How is this dual feat achieved? Two entirely different

RIGHT SYSTEM

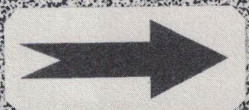
OF

SOIL FERTILITY



WHY BUY NITROGEN?

atmospheric nitrogen is available through



legumes
(clover, peas, lucerne, etc.)



rhizobium bacteria



free natural nitrogen



35000
tons nitrogen
over every acre



the earth's atmosphere contains far more natural nitrogen than any crop needs...SO WHY PAY FOR IT WHEN IT CAN BE OBTAINED FREE?

BOARD SEVEN

life forms must combine in a symbiotic relationship (mutually beneficial).

Rhizobia bacteria attach themselves to the roots of leguminous plants in parasitic fashion. The two living forms, aided by photosynthesis, fix atmospheric nitrogen in the soil. It is stored in tiny sacks, called nodules, on the roots of the plants.

Nitrogen fixed in this way has many advantages for the agriculturalist compared to the Chemical System. It is:

FREE

HARMLESS TO MICROBIAL SOIL LIFE

NOT EASILY LEACHED FROM THE SOIL

LOCATED RIGHT FOR THE NEXT CROP

USED WITHOUT ANY GLUTTING EFFECT

MAN'S SUPERIOR SOURCE OF PROTEIN

INDEPENDENT OF MECHANIZATION

Why Buy Nitrogen?

It would seem like absolute foolishness to do so when it is FREE and in unlimited supply.

Legumes are available as many different types of plants. Some of the more common ones include:

CLOVERS

MEDICS

PEAS

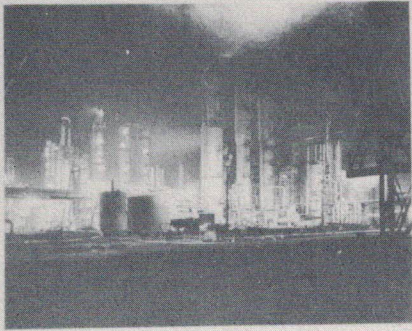
BEANS

Exudates from the roots of these plants actually attract Rhizobia bacteria.

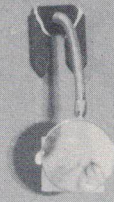
Look closely at the root system of the legume plant on the display board and you will see the nodules for yourself.

Here is an Efficiency Table showing:

NATURE'S MINUTE FERTILIZER FACTORY

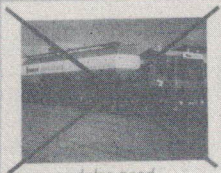


nitrogen fertilizer factory—technology's substitute for legume nodules



NODULES

NITROGEN FACTORIES ON
LEGUME ROOTS



nodules need
no costly transportation



legume nodules need
no application

the
miracle
of
nitrogen
fixation

BOARD EIGHT

NITROGEN FIXING CAPACITY OF BACTERIA

Legume	lbs. per acre of nitrogen fixed in the soil
LUCERNE	450
CLOVER	260
SWEET CLOVER	270
SOYBEANS	160
FIELD BEANS	70

("Soil Conditions and Plant Growth", by E.W. Russell, p. 350)

". . . The clover is fixing 480 lbs. per acre of nitrogen per year which is harvested in the grass and clover leaf and if as T.W. Walker (J. Sci. Agric. 1956,7,66) suggests, as much as 50 percent of what appears in the tops is left behind in the soil as grass and clover

must be fixing about 700 lb- per acre of nitrogen annually." (Ibid. p. 351)

Nature's Minute Fertilizer Factory

Contrast the fantastic complexity of the Artificial system with the almost microscopic NODULE.

Notice man's clumsy substitute for this tiny little nodule - A GIGANTIC FERTILIZER FACTORY!!

Because the nodule containing natural nitrogen is already in the soil, the farmer can also save on a costly transport system and expensive machinery.

Read for yourself the intriguing story behind "THE MIRACLE OF NITROGEN FIXATION".

Only Nodules Produce Quality

This display contains the evidence that sold the Chemical Fertilizer Industry to million of farmers!

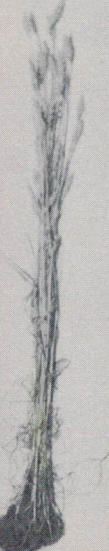
Make your own comparison between Wheat plant No. 1

ONLY NODULES

PRODUCE

QUALITY

1

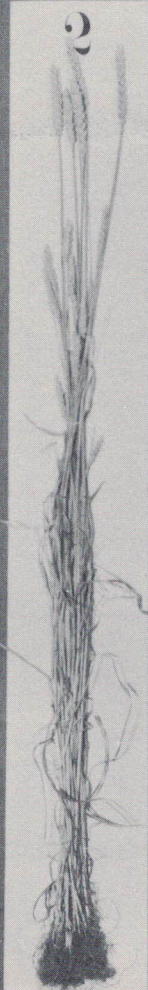


WHEAT SAMPLE NO. 1

no fertilizer



2



WHEAT SAMPLE NO. 2

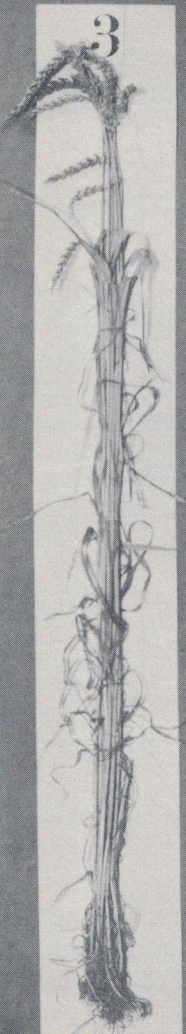
natural nodule nitrogen

WHEAT QUALITY

the quality of wheat depends on its protein content, the darker the grain the higher the protein, take careful note of the protein difference between naturally fertilized wheat and chemically-grown grain size is not a standard of value.



3



WHEAT SAMPLE NO. 3

chemically fertilized

LOW-PROTEIN INFERIOR WHEAT

95% of all wheat grown in England is like this. Is it worth it?



BOARD NINE

and No. 3. Sample No. 1 represents all that is bad in the "Old System", poverty-stricken soil yielding 2 to 10 cwts. instead of 20 cwts.

Sample No. 3 is wheat from soil of poor fertility which has been heavily dressed with Artificial Fertilizers. (Note the nitrogen wastage in useless straw production.) Heavy yields of grain are obtained, (U.K. national average is 28 cwts.) but grain quality is poor.

How poor? U.K. grows five to six million acres of wheat annually and NONE of this is fit for bread-making. Some claim the climate is unsuitable. It's not the climate, it's the SOIL! Since the 1600's some have claimed it is more "economical" to get quality wheat from North America!

Can you believe it would be more economical to import your bread wheat 4,000 miles by sea and 1,000 miles by rail from North America? Remember also that both Canada and the U.S. have a HIGHER living standard than Britain - the IMPORTER!!!

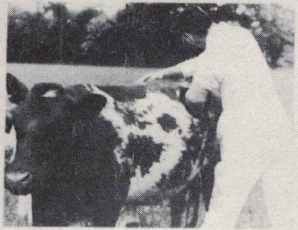
Why then can North American farmers grow so much

bread (hard) wheat? They have a large area of high fertility soil which they have been plundering for a much shorter time than we have ours here in Britain!! THAT'S WHY!

Sample No. 2 is wheat grown on our own Research Station. It was produced without any Chemical Fertilizers, Pesticides or Herbicides and the Bakery Research Institute rated it as equal in quality to the Hard Wheats of North America!

Farmer & Stockbreeder of 2/9/69 has an article on Haughley Experiment Farm which states on p. 31 that this same wheat variety yielded 23 cwts. per acre. That yield (also without "Artificials") is good compared to the 28 cwts. U.K. national average when you allow for the difference in quality and relate these yields to Board 1.





*expensive, inhumane animal
research will end*

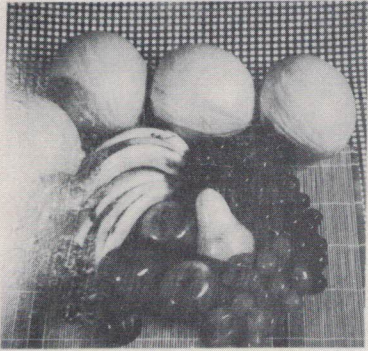
BENEFITS

OF



NATURAL

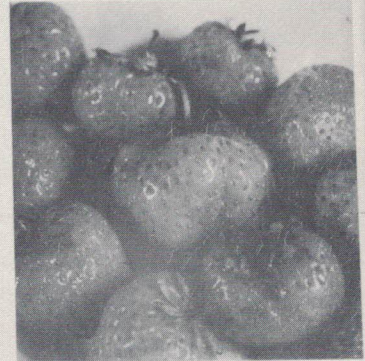
FERTILITY



least-cost abundance



problem-free living



tasty, succulent produce

BOARD TEN

Under the "modern" system of food production, farmers are kept busy every day from dawn to dark. Every day involves them in hazards that threaten their productive success and economical survival, such as pests, disease, poor soil, etc.

However, if food production was based on a system of soil fertility and crop use which co-operates with known laws, life would be very different for the farmer.

His soil, correctly handled, would THEN be fertile and healthy, It would produce rich-flavoured, disease-free, top-quality food.

When people are finally educated to buy quality, the produce will have a higher market value. Expenses would then tumble. Costly Chemical Fertilizers would become a memory and pesticides and herbicides would no longer be a worrisome burden. Considerable machinery would be out-moded and could be sold because obedience to natural law would free him of excess laborious work.

No longer need the economical treadmill demand his

Benefits of Natural Fertility

entire day from dawn to dark. He would be free to spend more time with his family in picnics, hikes, walks etc.

High quality food would go a long way to making family medical bills almost a thing of the past.

Finally, farming would at last become the rich and joyous occupation that it is meant to be, instead of the "penny-pinching" peasant-like scramble for survival that we have witnessed throughout all history!



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