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## Organising work in the pig enterprise

by A. H. C. KUIPERS

*NV Fomeva, Cuyk, Holland*

IN order to understand the organisation of our work, you will need to know something about the overall enterprise. Fomeva Ltd. is a subsidiary of Homburg Ltd. The latter is one of the biggest meat packing businesses in the Netherlands, which exports its products all over the world.

The aim of Fomeva Ltd. is to produce the most economical pig of a high meat quality for Homburg Ltd. In order to achieve this, a breeding centre has been founded, where about 3,000 sows—including pregnant gilts—are kept. We work with three breeds, namely Dutch Landrace, the Dutch Large White and the Piétrain.

We are doing the selection on the central farm. Dutch farmers then sign a contract to become sub-breeders and multipliers of our central stock. The sub-breeders buy the breeding animals from the central farm and they supply the multipliers with young gilts. The boars for the multipliers are directly supplied from the central farm. The multipliers produce the feeder piglets for the feeders. In this way a vertical integration system is built up, which aims to provide Homburg Ltd. with good and a sufficient number of pigs for slaughter.

### Distribution of duties

At the central farm there is a manager with a staff of three senior people, each of whom has a specialised task. One is a zoologist/geneticist; he supervises the breeding of the animals and the management of the breeding and testing units, especially the reproduction. Another veterinarian is responsible for the health of all the animals on the central farm. He has special responsibility for farrowing and for the weaners. In addition he assists the general and technical managers with the distribution of labour.

It is the task of the third veterinarian to administer the vertical integration system and to control the health of the animals on the contracted farms at least once in four weeks. He does not practise as a veterinarian, but advises the farmers in co-operation with the local veterinarians and possibly with the Provincial Animal Health Service Station.

The financial administration is carried out by the head office of Homburg Ltd. The business administration is organised in such a way that it is possible, with the help of a computer, to check the financial and scientific situation on the central farm at practically any time. Each animal on the central farm has its own

card, on which all pertinent information about its life is registered. All the information on this card is also stored in the computer.

The administration staff on the central farm itself assembles information necessary for the computer. Under the staff of veterinarians there are five managers, one of whom acts as general manager. In co-operation with the general manager, a labour analyst is responsible for the planning and the execution of the work. These two managers make four-week, week and daily work schedules. The labour analyst works closely together with the head of the industrial engineering and planning department of Homburg Ltd. This is done so as to be constant up-to-date with the latest ideas of labour efficiency.

Two other managers act as the assistants of the zoologist/geneticist. One of these managers is the immediate supervisor on the reproduction department (AI and natural service). The other is the supervisor of routine work in the testing units. His special tasks are the administration of all the animals that are tested and the measurement of backfat thickness in living animals, etc.

The fifth manager is the head of the technical department. On the central farm, which has its own water supply, there are 52 houses. Several houses for farrowing, for the weaners and for the very young breeding gilts—are connected to the central heating system. The central farm has its own electric transformer.

At the central farm the staff and managers are always looking for improvements and simplifications. The technical manager frequently works with the labour analyst. Both are closely involved in the building programme. Furthermore, there is also a department for general affairs which is directly responsible to the general manager. It can be divided into three sub-departments: one for security, one for transport and a cleaning department.

The security men make an inspection tour at least two times a night through all the houses. The rest of the time they work in the farrowing houses.

The transport department looks after the transportation of animals, of straw, and all the other materials. In the houses where straw is used—these are the houses for farrowing, for weaners, for gilts, most of the houses for sows—the straw manure is removed from the pens into the dunging passages. Two modified farm tractors push the straw manure outside

A working schedule is organised so that all the houses are cleaned at the right time. Straw manure is lifted by a tractor and put into special lorries and transported to the straw manure yard. Another big tractor with a cage elevator transports the pigs within the central farm.

Piglets are transported by means of electric tractors. The transport of straw from the central storage (1,000 tons per year) is carried out by the big tractors.

**The cleaning department**

The "all-in all-out" system is applied as much as possible. This system is always used for the farrowing houses and the houses for weaners. Cleaning is effected by a specially trained staff. If a house is empty, the first thing is to remove as much straw manure as possible. Then, by means of a spray-gun, the walls, floors, etc. are sprayed with a solution of soap. Through this process the straw manure particles are soaked off within a quarter of an hour. Immediately afterwards the whole interior is cleaned by high-pressure sprayers. Four people are able to clean a stable of 70 by 10 metres within one working day.

At the end of the afternoon the stable must be ready so that the staff of the Technical Service can fumigate it. By means of electric cookers liquid formaldehyde is vaporised to a concentration of one litre per hundred cubic metres stable-capacity. During the night this gas can disinfect the whole interior. The next morning the gas is neutralised by ammonia-gas (one part ammonia per five parts formaldehyde). The fans are switched on so that all the gas is blown out and fresh air can enter into the house.

The "all-in all-out" system cannot be applied in the gilt and sow houses. If such a house is completely empty, it is treated in the same way. When the animals are removed it is the responsibility of the cleaning department to see that the animals are never put into dirty pens. Before putting animals into other pens, these are always cleaned very carefully. This is essential as we know from experience that many animals should come into heat, and which are taken into dirty pens, do not come into heat. Since we have been thoroughly cleaning the houses and pens, we have had fewer problems with the coming into heat of the pigs.

The cleaning department staff consists of 12 workers. When they are unable to do their specialised work, they do other jobs in sections where they may be needed.

**The processing of urine and manure**

The testing houses and some sow houses are equipped with slatted floors. The sludge from these houses and the urine from all other houses go into a sewerage system. This liquid manure and all the effluent water flows by way of the sewer to a "Pasveer"-installation.

This installation operates automatically and gives full satisfaction. The sludge is agitated to bring air

to the aerobes so that they break down the sludge. The average values during the period of February 1969 up to and including June 1970 are:

- PH = 8,1 mg/l
- BoD5 = 80 mg/l
- NH4 = 400 mg/l
- NO2 = 700 mg/l
- NO3 = 20 mg/l

After storing in buffer basins the amount of sediment remaining in the effluent that can settle is almost zero.

The "Pasveer"-installation is under continuous inspection of the Dutch Department of Agricultural Sewers, Arnhem. This service was advised by the Dutch Central Department of Sewers at Voorburg.

The capacity of the "Pasveer"-installation is 1,000 cubic metres. Each day about 100 hundred cubic metres of waste water is purified. This year the capacity of the "Pasveer"-installation will be enlarged to twice its present size. The straw-manure is not presently processed. Two hundred and fifty tons are removed weekly from the storage yard for which we are paying a fixed charge. This problem needs a better solution. The maintenance of the "Pasveer"-system is carried out by our own Technical Service.

All spaces between the houses are provided with a brick or asphalt pavement. Rain water is drained off by way of a special sewer to settling-ponds. Two hectares with houses are not connected with this rain water system. The rain water from this area ends up in the sewerage of the "Pasveer"-installation. This has been done especially to have the sewerage-system cleaned now and then by rain water.

**Feed and silos**

All houses are equipped with built-in silos. On average every week about 110 tons of mixed feeds are bought from a private feed company. All the feed is pelleted. The feeds are prepared according to our own formulae. Feeds used consist of:—

- Starter-pellets
- Piglet-pellets
- Gilt-pellets
- Growing-pellets
- Sow-pellets
- Lactating sow-pellets

We enter into an annual contract with this feed firm and every three months the prices are adjusted. Also every three months the formulae are redetermined; there is no deviation from the formula during those three months.

**Delivery of animals**

On an average the following numbers of animals are delivered weekly:

- 80 slaughtering pigs from the testing stables
- 20-culled sows

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- 15 culled gilts
- 700 fattening piglets to pig-feeders
- 12 tested boars to sub-breeders and multipliers
- 24 three month or more pregnant gilts to sub-breeders and multipliers
- 70 young gilts to sub-breeders and multipliers

The numbers of breeding animals to be delivered will increase considerably in the near future. The transport of these animals is carried out by a private firm, but their trucks are under our supervision.

**The breeding scheme**

All the boars destined for the central farm, the sub-breeders, and the multipliers are tested on the central farm. Also the gilts for the central farm are tested in the same manner. The animals enter the testing houses at the age of eight to nine weeks with an average live weight of 20 kilograms. The test starts when they have reached a weight of 25 kilograms. The feeding is ad lib.

The animals are kept in individual pens. For this purpose the litters (eight animals per litter: four gilts and four boars) are already selected during the period in the farrowing houses.

The so-called combined testing, performance plus sibtesting, is applied. During this testing period food, conversion rate, growth rate, and backfat-thickness are measured. The carcass classification and meat quality are observed for each single litter by slaughtering one gilt and one boar.

At present the central farm has several boars of the Dutch Landrace and Yorkshire with a food conversion rate lower than two and a daily growth rate of about 1,250 grams.

Pure breeding is generally used on the central farm. Cross breeding is only done for experimental purposes. Crossing of pure lines from the Dutch Landrace with the Yorkshire is done by the sub-breeders. The multipliers are applying reciprocal crossing.

**The division of the houses**

The houses are divided into five main sections. A sub-manager is in charge of each section.

1. the farrowing houses: 10 in total. All together we have 648 farrowing pens at our disposal. One man is responsible for one farrowing house
2. the weaner-section
3. the section for the young breeding gilts. The animals enter these houses at the age of 8 to 9 weeks and stay there until they are about 10 months old
4. the section for the dry and pregnant sows and their boars. In this section there are also houses where breeding gilts of five months or older are housed. They are mated here and stay here till they have a pregnancy of six to seven weeks.
5. the testing houses. More detailed information given later.

**The justification of the labour time**

As we have seen the houses are divided in five sections. A sub-manager is in charge of each section. This sub-manager has daily a number of workers at his disposal for his own section. These workers can be subdivided: one group is always working in the same house on the same kind of work, the other group is available for the rest of the work which has to be done.

Routine jobs, such as feeding, mucking, straw provision, etc. are done by the man who is permanent in the house. Other activities, such as castrating, tattooing, weighing, etc. are performed in co-operation. Each day the sub-manager fills in a form for each man who has been working in his section during that particular day. This is the justification of the labour time.

This is what such a form looks like:

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Administration number: \_\_\_\_\_ Section number: \_\_\_\_\_

working hours from	to	work code	productive hours	non-productive hours	absent
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The sub-manager signs each form. These forms are sent to the computer centre every week where the codes (the various activities) are totalled. A total account is given every four weeks. Wages are paid every four weeks. During this period each worker is obliged to work one weekend for which the payment is included in his wages. From the payment account of four weeks charts are drawn up in order to give the management full information and a justification of

the labour time in that period. Also the following factors are reported in detail: hours spent in catching up hours of absence, overtime, extra work during the weekends, etc.

The hours of absence are split up into:  
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The analyses of these periods of four weeks are discussed at the staff-meetings. Moreover, the results of these analyses are used again for purposes like planning and personnel requirements. The computer can calculate the worker's wages for each four weeks. The work-forms are used in all the departments. Each department has its own code. This is one of the

responsibilities of the general manager and the labour analyst.

### The farrowing houses

In the farrowing houses the "all-in all-out" system is applied. At the moment about 108 litters a week are born at the central farm. The age at weaning is five weeks. Calculations and charts have shown that this has provided our firm with the largest litters and that this age of weaning results in the best conception rate.

Details of the age at weaning, litter-size and annual number of piglets per sow are given in Table 1.

Table 1

length of the period of lactation	number of animals	interval between weaning and next positive mating	litter-size total of piglets born	farrowing index	theoretical number of piglets annually
18-24 days	104	21.8	10.1	2.30	23.14
25-31 days	282	16.3	9.9	2.29	22.70
32-38 days	71	14.6	11.3	2.23	25.20
over 38 days	69	14.2	10.6	2.09	22.24

interval between farrowing and first mating	number of animals	number of pregnant animals	conception percentage
less than 23 days	35	20	57.1%
23-26 days	75	51	68.0%
27-30 days	142	104	73.2%
31-34 days	553	419	75.8%
35-38 days	434	320	73.7%
39-42 days	246	174	70.7%
43-46 days	126	77	61.1%
47-50 days	101	55	54.5%
51-54 days	61	43	70.5%

The best conception rate is reached with those animals that are mated between 27 and 42 days after farrowing. The farrowing-index is calculated by dividing the number of days per year (365) by the sum of the average length of the period of lactation plus the interval between weaning and the next positive mating plus the average duration of pregnancy.

### In the farrowing houses

Upon their arrival at the farrowing houses, three days before farrowing, the sows are given a bath, they are made free of scabies and their first meal consists of a worming-cure. The sow-cards (on which the whole life-cycle of the animal is noted down) are placed in a special tray near the pen. At the same time a special piglet-litter-card is placed into each card-tray.

The sow-card stays with the animal throughout its life. All mutations are mentioned on the card, and the card accompanies the animal wherever it goes. Usually the first sow farrows within two days after arrival. The other sows farrow within five days.

Work in the farrowing houses consists of routine activities and of tasks that are carried out in groups during the period of time between farrowing and weaning. Among the regular activities are:

- the feeding of the sows
- the creep-feeding of the piglets
- the dunging-out of the pens
- general sanitary activities like replenishing the caustic soda footbaths at the house entries, disinfection of the central dunging passage.

Activities carried out in groups cover:

- castrating
- tattooing
- weighing at birth and weaning, etc.

The sow-cards and the piglet-litter-cards are filled in under the supervision of the sub-manager. The following items are entered on the sow-card:

- the sow's number

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- date of birth
- pedigree
- date of mating or insemination
- the boar's number
- name of the inseminator
- number of the farrowing stable
- date of arrival
- date of farrowing
- litter-size
- number of still-births
- ear-number of the piglets
- data concerning birth, litter and the animal itself
- date of weaning of the litter, etc.

On the piglet-litter-card the following details are entered:

- number of the pen
- date of birth
- boar's number
- sow's number
- number of the farrowing stable where the birth took place
- number of living boars
- number of living gilts
- number of still-births
- number of waste piglets
- weight at weaning.

During the first week of their lives the litters are selected for the first time by the genetic service. Already at this stage litters are selected provisionally for the testing houses.

Before weaning a new selection takes place. Immediately afterwards the boars of the rejected litters are castrated.

All these data are transferred to the computer from each farrowing house. The returning lists state litter-size, average weight at birth, weight at weaning, litter size at weaning, etc. From these results provided by the computer, and an analysis of the labour time, it is possible to calculate whether the profit of the houses is proportionate to the hours spent. In this manner it is possible to calculate how many hours per worker are needed in order to reach an optimum at the farrowing houses.

As a check on the piglet-litter-card the sub-manager must keep a daily list of each farrowing house. On this list the number and type of animals present in the houses, the food consumption, straw consumption, arrival and departure of animals, etc. are recorded. Such lists will be found in all houses. They are brought up to date every day by the sub-manager. Once a week the lists are taken to the office of the central farm.

### The houses for weaned piglets

The weaned piglets are taken out of the farrowing houses and are taken to houses specially designed for these young piglets until they are seven to eight weeks old. At the weaning the piglets are divided into two groups:

- (a) the group that already has been selected at the farrowing house to be breeding-animals later on
- (b) the other animals of which it is known already that they will become pigs for the feeders.

The piglets are put together in groups of 15 animals. Within the group they have the same weight. The animals are fed ad lib at these houses. The food given to each group is weighed. At these houses the breeding piglets are selected once again. The litters that are intended for the testing-houses are examined very critically. Also the breeding gilts for the sub-breeder and multipliers are selected carefully. The boars that drop out at this selection are castrated immediately and go to the feeders together with the gilts that have not been selected. Before they leave the animal intended for breeding are weighed.

This administration system enables us to keep the accounts of the number of days spent in the house and consumption of food per group. The best litter go to the testing houses. Again the computer totals the labour time for each four-week period. Also by means of comparisons of total labour time, growth rate and food conversion rate it is possible to make an optimum estimation of working-hours per house.

### Young gilts

The gilts for the sub-breeders and the multipliers are removed to these houses after the period they have spent at the weaning houses. These houses are connected to the central heating system and are kept at a temperature of 16°C. Here the animals are fed moderately. At the age of five months they are taken into a special section of the sow-houses. The animals are treated for mange upon arrival and departure. Here, too, the same labour time account is applied. In addition an account is kept of the number of pigs per house, per pen, and the consumption of food and straw.

On arrival at this house every gilt gets its own sow-card. These are put into trays by the pens in which the animals have been placed. Moreover, the animals get an extra plastic ear-number. This number is not the same as the tattooing-number, but it is also written on the sow-card. This saves a lot of trouble and makes the identification of the animals much easier. The administration of the centre has a duplicate card of every gilt, sow and boar at the office. The mutations are kept on these cards day by day. This office also registers the age of the gilts and informs the managers as to which animals must be removed. Every removal is passed daily to the office.

By means of the registration of the daily situation, a record of the number of animals at a house, food consumption, etc. is kept.

Sub-breeders and multipliers are supplied with young breeding gilts from these houses. Formerly we had some trouble in getting the gilts in heat on time. Since we removed the animals at the age of five months into the sow-houses we have not had any more trouble. At the sow-houses the gilts come into pens which have been cleaned very thoroughly. They now get more food (flushing). At the age of six months the animals are coming into heat for the first time. The animals can be mated at the age of about eight months when they are in heat for the third time.

By studying the charts of the litter-size of the gilts which become pregnant at the first mating and at a renewed mating and noting the age of the gilts at the time of removal, it could be concluded that this method was the best. Since we stick to this method of working we have a very good reputation with the sub-breeders and multipliers concerning the litter-sizes of the gilts we sell them. The gilts that are mated at our central farm are  $7\frac{1}{2}$  to eight months of age on average. The gathering of information and the studying of the charts has been a great success.

#### The testing houses

At this moment we have six testing houses at our disposal, which can accommodate a total of 2,128 animals. Two large testing houses with a total of 1,120 places are under construction. These have to be ready by the end of 1971. In the course of the next two years our breeding centre will build even more testing houses, so that we will have some 5,600 individual places in all.

The work in these houses is the basis of the whole breeding programme. The provision of individual places and the work, especially the scientific work per animal, is extremely expensive. We have already achieved good results, but nevertheless the achievements have to be greater.

Every animal has its own card with the necessary data. In these houses, too, we apply the same accounting procedure for labour time and further house administration. The labour time spent in these houses could be shortened very much by means of the application of slatted-floors in the dunging passages and drink-nipples instead of automatic drinking-troughs.

It is the intention to apply here, too, the "all-in all-out" system as soon as all testing houses are ready. Although these houses are in the same area, they form a separate unit. The section can be shut off from the rest, so that it can operate in a completely independent way. This has been done to reduce the risk of disease. The best animals from these stables become breeding animals. As they have been fed ad lib up to about 110 kilograms live weight, they get three months time after this period to recover and to adapt themselves

to the normal breeding scheme. Despite the extremely expensive method, calculations prove that this way of breeding does pay.

#### The sow and boar houses

These houses can be subdivided into five groups:

1. the boar houses. These can be subdivided into the group AI and the group natural serving
2. the section for weaned sows from 0 to + 10 weeks pregnancy
3. the section for sows from 10 to 16 weeks pregnancy
4. the section for gilts with gilts of five months old up to and including six weeks pregnancy
5. the section for gilts with pregnancy of over six weeks

The workers in these houses can be subdivided into two groups:

- (a) the reproduction group (AI and natural serving plus checking for heat)
- (b) the group that takes care of the normal work done in a house.

The reproduction group is only permitted to do normal work after their own duties are finished. This section keeps a very careful administrative check on its operations. Everything is worked out by the computer. Once a week this machine delivers lists covering all the mated animals. Among the data given for each animal are the date of mating, the boar used, all the information concerning semen quality, the number of the inseminator, etc.

From this we predict—by using the average conception rate—how many farrowings can be expected during the coming 16 weeks. At the same time lists are made with the help of these data, which show how many animals will farrow within four weeks, broken down into farrowings per week. In this way it is possible to assemble the animals which will farrow within one week into one or two farrowing houses. With the help of this information a 4-week planning is put up for the filling of the farrowing housing and for weaning. Deviations in the number of sows that are to be weaned can be prevented by weaning some a bit earlier or later, so that over a period of weeks always the same number of animals are weaned. The average number and variation of repeat breeders among sows and gilts is known accurately from the charts, so that the number of litters can be planned with a rather great certainty.

Apart from a single interruption in coming into heat after weaning—this may always happen—even the number of gilts of five months old, which are to be removed, can be planned three months in advance.

All these operations are important for planning the work on the central farm. In order to make the

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months old, which are to  
be farrowed three months in advance.  
is important for planning the  
work. In order to make the

removal and the work as efficient as possible, all the data of the centre have to be laid out in a routing scheme. In this way it can be decided how the houses are to be situated with respect to each other and even how they are to be fitted up.

#### The work in the sow and boar houses

Animals with about the same mating-date are kept together. Repeat breeders are taken out of these groups and placed back among the animals that are mated or inseminated on the same day. The weaned sows are put into individual pens. There they are to stay till about one week after mating or insemination. Usually the animals are mated or inseminated twice in the same heat-period. Then the animals are removed to compartments in which they can lie and be fed individually, but where there is also the possibility for them to become acquainted with each other via the dunging passages with slatted-floors. Here they stay until they are 10 weeks pregnant. The apparently pregnant animals are now taken over to houses with group-housing (pens with six to eight animals). The doubtful ones are now taken to a special section, where they are carefully observed daily.

The young gilts of about five months old are put together in groups of 10 to 12. They are mated at the age of 7½ to 8 months and remain in these pens until they are some six weeks pregnant. At this time the animals which have become pregnant at the same time are taken to other houses in groups for a period of six to eight weeks. Here they stay until they are removed to the sub-breeders or multipliers. The remainder go to the farrowing stables.

The young boars that are about 7½ months of age are examined for semen quality and mating capacity. No boar leaves the central farm without this information. The animals that are not up to the standard are slaughtered. The gilts that do not become pregnant go to the factory, where their reproductive tracts are always examined. Individual food conversion rate, growth rate and backfat thickness are also recorded on the herd-book forms of the boars. The weaned sows are inseminated as soon as they are in heat. The gilts and all repeat breeders get natural service. Every day (seven days a week) all animals are checked on their state of heat when they are likely to be in heat. Every animal that shows some signs of being in heat is marked so that the development of heat can be well observed.

The results of the work of the reproduction group are vital to the final financial results of the enterprise. Weekly, the conception rate per inseminator is calculated. Also, the labour requirement is noted carefully in graphical form. The comparison between the labour time and the results per man per house is most important.

The charts show that during periods of scarcity of personnel (holidays, illness, special holidays, etc.) the reproduction group must be kept at its normal

strength at all costs. If not, 17 weeks later fewer litters are obtained, and five weeks after this fewer sows can be weaned. This again results in a smaller number of litters. In such a case one will need almost a year to fill up these gaps. Efficient working is not possible in this manner and it becomes a stop and go situation.

Another chart of importance is that of the average number of days between weaning and first mating. Sometimes there are deviations that are difficult to explain. This chart, too, must be brought into connection with labour requirement of all parts of the work. One of the most important charts is the one indicating the average number of days between the first mating and the following positive mating with repeat breeders. These so-called barren or dry days cost a lot of money to every pig enterprise. The better the conception rate and the more accurate the supervision of heat periods, the fewer barren days. With a 60 per cent real conception rate, we average about 10 days or seven weeks between the first insemination and the following positive insemination. With a 70 per cent real conception it is about 40 days or six weeks. With even better results this number decreases even more. These data enable us to calculate the number of sows needed to reach a fixed number of litters per week. At the central farm the following formula is used:

$$A = B + (C \times D \times E)$$

A = the real number of sows needed

B = the theoretical number. This is the number of litters per week multiplied by 52, divided by the farrowing index, belonging to the average period of lactation.

C = 100 divided by the average conception rate minus 1

D = the number of litters per week

E = the average number of barren days between first mating and the positive mating, expressed in weeks. The number of additional sows needed to reach the planned number of litters per week is  $C \times D \times E$ .

With 60 per cent pregnancy and 100 litters per week this spare number is:

$$\left( \frac{100}{60} - 1 \right) \times 100 \times 7 = 462 \text{ sows.}$$

With 70 per cent pregnancy this is:

$$\left( \frac{100}{70} - 1 \right) \times 100 \times 6 = 258.$$

This means a yearly saving of:

$$204 \times 365 \times \text{Dfl. 3.} = \text{Dfl. 223.380.}$$



From all this it is clear that it is necessary to record and study as much information about the pigs and the results as possible. At least once every four weeks it is necessary to draw up a balance sheet of our operations. In conclusion we can say that labour-planning, division of work, charting and 4-weekly balance sheets make up an integral part of pig-breeding on an industrial basis. The three most important sections are:

1. the results of the reproduction group
2. the results at the farrowing and weaning houses

3. the results at the testing houses.

I hope that you have gained some insight into the management of our pig enterprise. I hope too that you now know more about the overall organisation and the scientific work on our central farm.

It is especially important to emphasise that it is possible to do scientific breeding and operate an economically efficient pig enterprise when extensive data are fully and accurately recorded, analysed by computer, and later carefully evaluated.

## ORGANISATION

## DISCUSSION

1. Mr. Kuipers for pig quality he wanted

- a. Cou... worl...
- b. In s... inter...
- c. How... cont...

2. Dr.

- a. The... of 1... for... with... coul...
- b. The... four... resu... to th...
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3. Mr. wish to k... Dr Kuiper... Homburg... and that... aspect of t...

4. Mr. of contrac... Dr. Kuiper... contract... farmers v... piglets cou...

5. Mr. fascinating

## ORGANISING WORK ON PIG ENTERPRISE

### DISCUSSION SUMMARY

1. Mr. Shannon (Northern Ireland) thanked Dr. Kuipers for his paper, and his efforts to improve pig quality, but said that there were a few questions he wanted to put to him:—

- a. Could the company pay as much money to its workers as industry was paying?
- b. In such a large organisation how were the interests of the workers maintained?
- c. How was the pricing between the firm and the contracting farms organised?

2. Dr. Kuipers, in reply, explained that:—

- a. The firm paid a weekly wage to its employees of 1,140 guilders per week; money was paid for extra time. Young men were glad to work with the firm as many farmers in Holland could not earn that money.
- b. There was a meeting of the managers every four weeks in which they got the financial results, etc. They passed this information on to the farm workers.
- c. A price committee sat each fortnight with representatives of all interested parties on it. The contract farmers got adequate rewards.

3. Mr. Baker, of the Netherlands, expressed a wish to know more about marketing arrangements. Dr. Kuipers said that marketing was carried out by Homburg Ltd. They exported to over 60 countries and that Fomeva Ltd. did not get involved in this aspect of the business.

4. Mr. Murphy (Rhodesia) asked about the terms of contract with those farmers who fattened the pigs. Dr. Kuipers in reply explained that the terms of contract could last for one or three years and farmers who required financial help to buy the piglets could have it from the company.

5. Mr. Morris (USA) thought the concept was fascinating and important; but he thought the idea

of setting up models was not all that satisfactory one could not be exact about detail. Dr. Kuipers explained that all husbandry and breeding points were investigated; that all the data that could be found was assembled and all precautions were taken. He also pointed out that the Pietrain pigs, at a conversion rate of 2.75, were not doing as well as the other two breeds in use.

6. Mr. McGregor (Canada) enquired if there was a pay incentive system for employees of the firm. Dr. Kuipers replied that last year the workers received a 6 per cent. profit percentage; that the managers received a higher salary and a high percentage of profits compatible with their responsibility.

7. Mr. Hogg (USA) asked about the availability of contract farmers and Dr. Kuipers said that at present there was no difficulty in getting farmers to take pigs. The average size of sub-breeder was 12 sows and the fattening farms had an annual throughput of around 2,500 pigs or 750 at any given time.

8. In answer to Mr. Wilson (UK), Dr. Kuipers said that computer programming was carried out and all up to date measures were used to ensure a smooth running system.

9. Mr. McKillop (Northern Ireland) commented on the extremely good farrowing index of 2.09-2.1 and litter size of 9.9-11.3, and asked the speaker to outline the husbandry points that contributed to these satisfactory results. Dr. Kuipers explained that it was important to wean at 28-34 days; that the leaner pigs were given special treatment in a battery system and that each pen after use was fumigated with formaldehyde; that when this was not done it was noticeable on the 4 weeks figure later—the conversion rate and daily liveweight gain would be lower. The all-in all-out system, he maintained, was the one that should be practised in the future.