

A NEW METHOD FOR RABBIT PRODUCTION

by

LOVELACE N. ODONKOR

Pastor Kristo Rabbit Farm
Post Office Box 31
Tsito - Awudome, Volta Region
Ghana

SUMMARY

To produce rabbits on a large scale using less labour, they should be kept in large groups for mass services and bred by plan for continuous production. Owing to the behaviour patterns of rabbits, it is very difficult to keep them in large gangs peacefully except in accordance to their sex, age and physical condition. Therefore the "Penta-Sectional Grouping System" was introduced along with the "Rotary Breeding Plan" which make fuller use of the rabbit housing, easy division of labour, routine work and ease of operation.

REPRODUCTIVE BEHAVIOUR IN RABBITS IN RELATION
TO THE NEW SYSTEM

Generally, rabbits kindle after thirty-one days of gestation. Gestation starts immediately after mating. When a rabbit is kindling and gets shocked by an intruder or an unusual noise, it tries to destroy the young and run away from the place. Before kindling, the Doe finds a secluded place and makes a nest. Thirty days after kindling the Dam starts restricting the young from sucking. After six weeks, the young should be weaned. The Dam takes two weeks to regain weight and then will be ready for mating again. At eight weeks it is very easy to identify Bucks from Does in the young. At fourteen weeks to sixteen weeks, the testicles appear to be well developed. Although by nature rabbits live in groups, they have their own social systems and rabbits violating these suffer biting from the stronger. When a Doe is receptive to the male, it looks for and starts climbing the back of the Buck even if the Buck is ready to mount her. Where there is no Buck, it will mount her fellow Does. Similarly when the Buck is matured, it mounts any rabbit, young or old, Buck or Doe and in such circumstances fighting erupts.

These observations prompted the development of the new system.

THE PENTA-SECTIONAL GROUPING SYSTEM

In this system there are five main sections in which the rabbitry must be divided. These are:

1. The Quarantine
2. The Weaners Section
3. The Mating Section
4. The Kindling Section
5. The Colony Section.

Every section has a specific part to play in the production network and careful integration is necessary for proper commercial husbandry.

1. The Quarantine

This is an isolation base and is very much important in animal husbandry. This section must be roomy enough to accommodate the different possible cases to be treated at any one time. It is however advisable to make it out in cubicles for individual accommodation as isolation cases may be treated here.

2. The Weaners Section

This section is meant for very young rabbits that are weaned from the kindling section. The weaners alone can stay together in large groups. These should be organized according to age, size, weight and health.

3. The Mating Section

This section is meant for breeding only. The Bucks are kept here permanently in a cubicle each and the Does are brought here for breeding.

4. The Kindling Section

This section keeps heavy Does for at least three days before they kindle. Four or more weeks could be spent here with the young before weaning. This section must be made up of cubicles designed to take one or two Does and their young only at a time.

5. The Colony Rearing Section

This section can take large groups of rabbits. The groups or colonies in this section are production stock grouped into light and heavy Does, and sales stock grouped into Bucks, Does and table rabbits.

This system of grouping is based on sex, age and physical conditions. Neglect of these factors will result in restlessness and fighting among any group of animals especially rabbits. Also with this system, it is possible to use expert rabbit husbandry to increase production by weaning bunnies earlier than natural, to allow the Dam to regain weight quicker for programmed mating and production. It is easy to make mass visual inspection and spot out weak ones immediately. Service is easier and production is precise. It is not difficult at all to operate the system since it is a matter of transfers from colony to colony according to a specific order and time in relation to their biological conditions.

Apart from daily sanitary practices, watering, feeding and other production operations, the operation involves weekly weaning of bunnies from the kindling section to the weaning section; transfer of young to their sex groups at the sales stock section; Dams to the light Does section; heavy Does to the kindling section; mated Does to the heavy Does section; and castrated Bucks to the table stock section.

HOUSING ARRANGEMENT

Incorrect housing arrangement is another important way of minimising inefficiency in production, labour and excessive paper recording. There are many types of housing that are suitable for rabbits depending on climate and size of breed to be kept. Thus we cannot be strict on dimensions and materials. However, whatever materials or style which may be used in housing, it is necessary to divide the rabbitry into two sections, i.e. the Production Section and the Sales Stock Section adhering strictly to the principles of the "Penta-Sectional Grouping System".

The Sales Stock Section, which must be designed to accommodate what can be produced by the production Does in six months ^{1/} (assuming each Doe litters average five young every quarter) must be further divided into the following groups:

The Table Buck group for castrated Bucks, table Does for matured Does that are not needed for production or are too old for breeding. Breeding Does group for young Does that may be sold for breeding and Breeding Bucks groups for young Bucks not yet castrated.

^{1/} Most people in this area like a carcass from a rabbit six months of age. Also enough room should be provided in case the average litter per Doe rise above five.

In fact, in all commercial rabbitries' Sales Stocks sections must be arranged in the above manner otherwise they cannot be kept in intensive groups which is the major key to cutting down operational labour costs.

The Production sections, however, are not the same. There are three methods of production housing arrangement. The first of which should be called subsistence rabbitry, is to keep each producer Buck or Does in a cubicle. There should be one Buck to every six Does and there should be special recording of date mated, kindled and weaned associated with each producer Doe. Strictly the Doe must be sent to the Buck when it is to be mated. After the mating the Doe must be sent back to its own cubicle. When it kindles, the young rabbits must remain with the Dam for eight (8) weeks before weaning. Immediately after weaning the young rabbits are sexed and sent to Sales Stock section and the Dam is sent for mating. This is called "subsistence rabbitry" because the labour involved in the operation is so high that the return on the working capital cannot allow for expansion and repayment of constructional expenditure.

The second method of housing arrangement which we call the commercial rabbitry has in the Production section intensive groups of light Does which are the matured Does to be mated. Four heavy Doe gangs are arranged in sequence: A, B, C and D, or 1, 2, 3 and 4. These are Does mated over the weeks and waiting to be taken to the Kindling section. It also has a Mating section with matured Bucks ready in their own cubicles to mate with any Doe that enters, a Kindling section and a Weaners section.

The light Does section must be large enough to contain one-quarter of the production Does. The four heavy Doe groups must contain one-twelfth each of the Does. The Mating section must contain one Buck to ten Does. This must be sited so that their scent will not flow directly to the light and heavy Does ^{1/}. The Kindling section which should have cubicles for each heavy Doe must be arranged into six groups, each group to contain one-twelfth of the Does. The Weaners section also must be arranged into four groups, each to contain what can be produced weekly.

With this system, the Does stay for only six weeks at the Kindling section when they would have littered and finished lactating. The hutches can then be cleaned and new heavy Does brought in. Thus eight litters a year can be obtained in one cubicle.

^{1/} The scent of the receptive Doe causes restlessness in the Bucks while the scent of the matured Buck causes restlessness in the light Does, fear and anxiety in the heavy Does and subsequent mishaps.

Considering the cost involved in construction of the cubicles, it will be found that it is more economical to make fuller use of them. Also considering the labour and attention it takes to keep a rabbit in a cubicle, it will be found that the intensive groups of weaners, light and heavy Does help to reduce labour to the minimum. And these are the reasons why we describe this system as a "Commercial Rabbitry".

There is not much difference between method two and method three, except that the kindling hutches are so designed to accommodate two heavy Does in a cubicle at a time. Thus sixteen litters can be obtained in one cubicle in a year. More attention is needed at this Section so as to avoid shortage of feed and water in the hutches. It has been discovered that the Does do not discriminate between litters when feeding. Therefore this system is more advantageous in that, when one of the Does is producing insufficient milk, the other will often feed both litters which results in less mortality. Owing to the tendency of rabbits to fight, it is not recommended that more than two pregnant Does are kept in one cubicle at a time.

Production management in methods two and three are the same and the system is described as "Rotary Breeding".

In "Pairing", which is the only difference between the two, attention must be given to the physical condition of the rabbits. They must all be at approximately the same stage of pregnancy, have similar body size, be similar types of breeds and have similar physical fitness. Incorrect pairing results in fighting, starvation of the weaker individuals and increased prenatal mortality.

Any problem involving incompatibility between Does using the same cubicle should be noted and dealt with well before kindling. Experience is especially important in the management of this system.

THE BREEDING PLAN

The advantages of the Penta-Sectional Grouping System are:

- High levels of production;
- Continuous production and supplies of meat rabbits;
- Easier and less labour;
- Precision.

With the above points in mind the "Rotary Breeding Plan" can be described.

Rotary Breeding

To produce rabbits in large numbers many Buck and Does are needed. According to experience in the unit described in this paper, the Does reproduce quarterly and they must be kept in seclusion before kindling. Therefore, if all the Does should be mated at the same time individual accommodation would be needed for each of them. Also, large numbers would have to be sold at intervals rather than on a continuous and steady basis. In this way the work force would be subjected to alternating periods of full and under employment. Also certain equipment would be left idle for periods of time.

With the Commercial Housing arrangement recommended here, adherence to the following plan of action will remove any unnecessary waste and give massive, continuous, and precise production with a very low labour cost.

Stage I

According to the arrangement of the production section, it will be found that the light Does, heavy Does and the Kindling sections have been divided into eleven groups. The light Does section must take one-sixth of the production Does, the remaining five-sixths must be divided equally among the remaining ten groups. This means the production Does have been divided into twelve groups, two groups living at the light Does section at a time; and that is the twelve weeks forming the quarter. The animals should be arranged within the rooms accordingly.

Stage II

The first groups from the Kindling section should be sent for mating and returned to their cubicles from the third to the seventh days of the week. As a guiding principle, they must be mated on two consecutive days of the week. It is advisable not to choose the first two days of the working week. This is because the days following a week-end are usually particularly busy, and less attention can be devoted to the supervision of mating. The groups are crossed weekly, in the sequence A, B, C, D, E and F, or 1, 2, 3, 4, 5 and 6. In these starting stages of the rotary breeding system, after the fourth mating session, the first group of the Kindling section should be prepared for kindling.

Stage III

At the end of the sixth mating session, it will be found that the first group has kindled and the young rabbits are about one and half weeks old. The rabbits from the mating section are then moved to the heavy Does section. After mating the fourth of the last group of heavy Does section, it will be found that

28 days have elapsed. But because they were not mated on the first two days of the week, the first group crossed at the heavy Does section will be twenty-six days pregnant and the last group will be twenty-one.

If the plan laid down here is followed the situation where the Does kindles in the colony (group range) will be avoided. The first young littered in the Kindling section would then be thirty-seven days old and the last in that group would be thirty-two days old.

The young rabbits can then be weaned and passed to the weaners section where they will have special attention including treatment with prophylactic drugs and feeding with vitamin supplements for fast development. The Dams should also be transferred to the light Does section and the cubicles then sanitised for the arrival of transferred heavy Does. These should be done in the first two days of the working week.

Stage IV

After the first two working days of the week, one twelfth of the production Does should be sent from the light Does section for mating and then to the empty and sanitised heavy Does section, from the third day to the seventh working days.

From this time onwards, one twelfth of the Does should be mated and passed to the heavy Does section in sequence during the course of a working week. Transfers to the weaners section should also be in sequence and when a group of weaners completes four weeks at the section it must be sexed and transferred to the Sales Stock section.

The following programme of transfer would eliminate excessive paper recording and make operation easy for the attendant:

General programme of transfers

First day of the working week:

- From: (a) Kindling to light Does section;
(b) Kindling to weaners section;
(c) Weaners to Sales section;
(d) Castrated Bucks to Table section;
(e) Culled Does to Table section.

Second working day of the week:

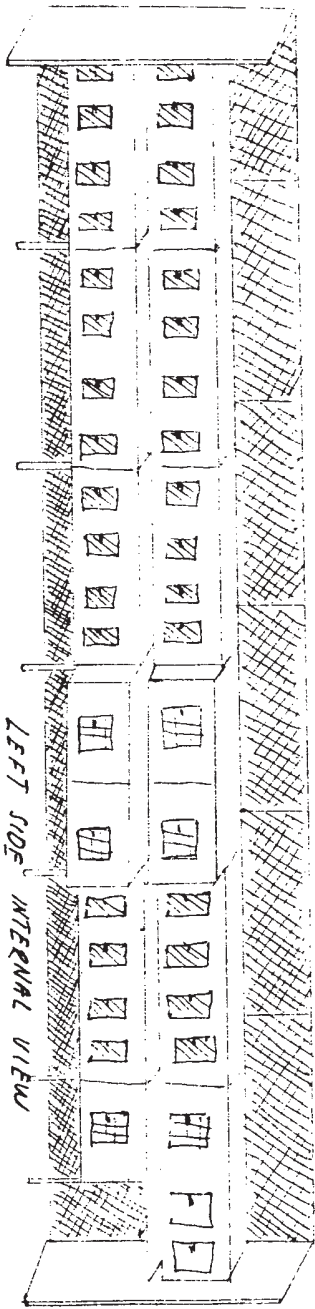
From: Heavy Does to Kindling section according to the sequence of mating.

Third to the seventh working days of the week:

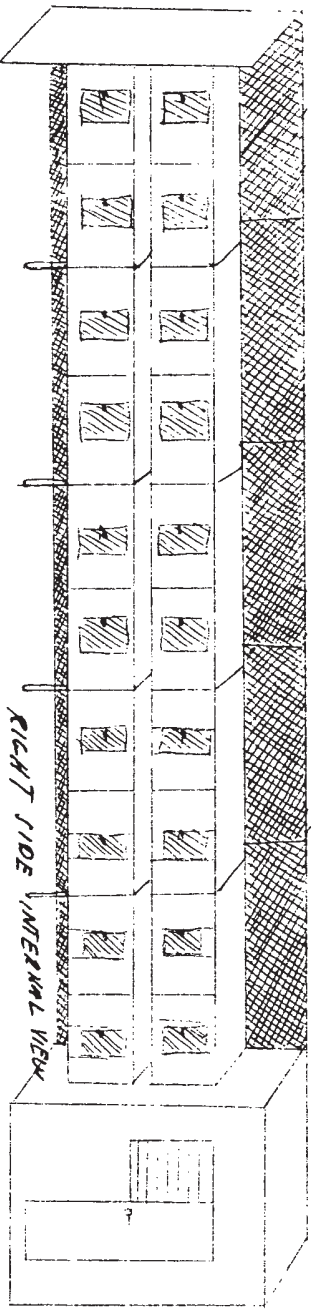
One twelfth of the successfully mated Does should be moved to the heavy Does section in sequence.

It should be carefully noted that confusion in the sequence of transfer may result in the Doe kindling in the wrong places and young rabbits being weaned at the wrong times.

It is believed that as time goes on, experience will result in the introduction of innovations which will improve the basis system described here. The only recording necessary with this system is concerned with the number of Does kindling daily, mortality, number sold and balance of stock in hand. Records should also indicate the approximate ages and physical conditions of the various sections and groups.



LEFT SIDE INTERNAL VIEW



RIGHT SIDE INTERNAL VIEW

Fig. 1

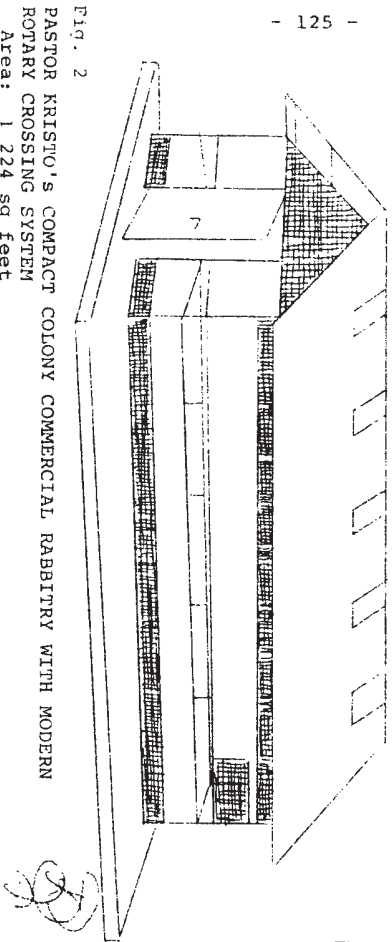
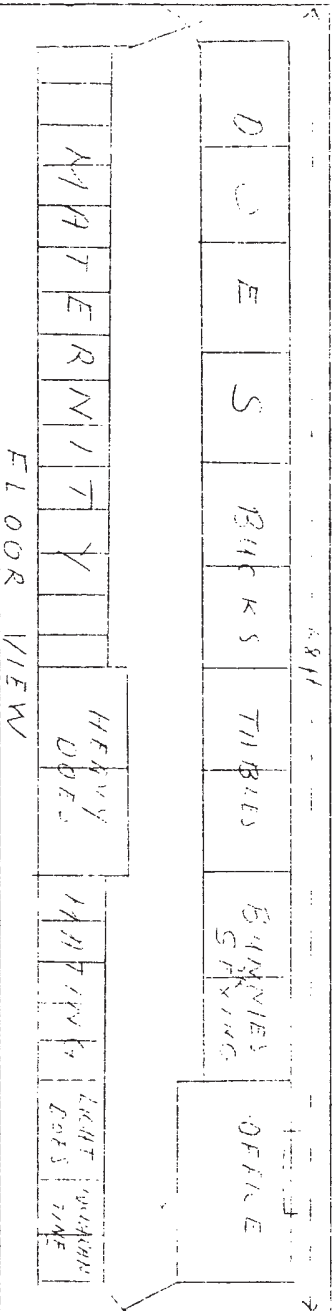
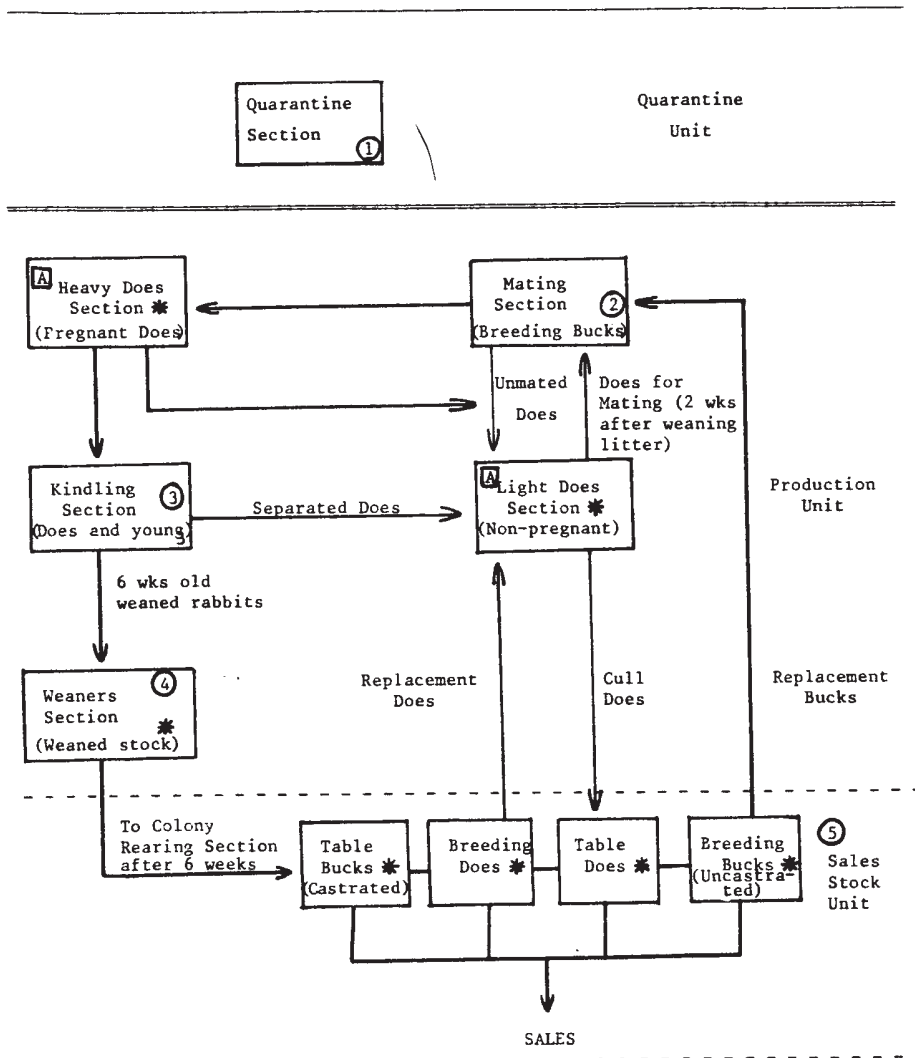


Fig. 2

PASTOR KRISTO'S COMPACT COLONY COMMERCIAL RABBITRY WITH MODERN ROTARY CROSSING SYSTEM

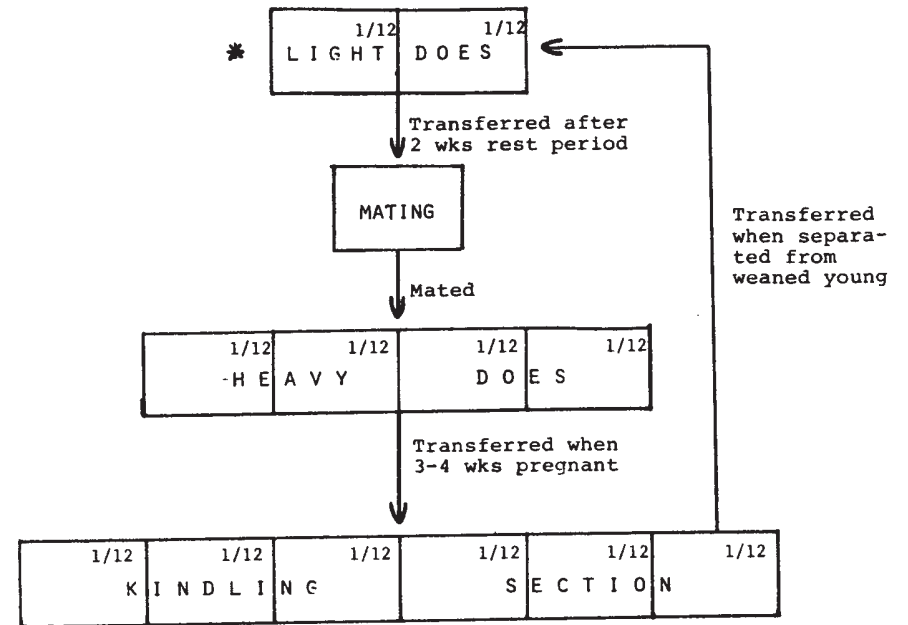
Area: 1 224 sq feet
 Capacity: 580 rabbits
 Production capacity: 80-120 monthly
 Durability: 10 years minimum. Major material: iron, wood and cement
 Features: Automatic feed boxes, records office and feed storage
 Temperature controlled

Fig. 3: THE ROTARY BREEDING PLAN AND GROUPING SYSTEM



* - Signifies that the rabbits are kept in groups or gangs. All others in single cubicles.
 ①-⑤ - Five major sections (penta sectional grouping system).

Fig. 4
 SYSTEM OF DOE TRANSFERS IN THE ROTARY BREEDING PLAN



* - Light does section must be large enough to house 3/12 of the production does.

Explanatory note

Each week 1/12 of the production does are transferred from the kindling to the light does sections. A group of does equivalent to 1/12 of the total are then moved from the heavy does to the kindling section, thus occupying the vacated space. For a time the light does section holds 3/12 of the total number of does, which is why it must be large. 1/12 of the does are moved from the light does section through the mating section to the heavy does section, leaving 1/6 of the does in the light does section at the end of the week.

The number of does mated at any one time depends on the space which will be available in approximately one month's time.