

Strategy of lifting up small or medium scale rabbit farming into an industrial type enterprise, with a special reference to developing countries

by

François LEBAS

Former General Secretary of the World Rabbit Science Association
President of the French Association "Cuniculture" - France
lebas@cuniculture.info

A- Introduction

The propositions and opinions expressed in the present paper come mainly from the author's 45 years of experience as scientist in rabbit production in France and European countries and from his experience of cooperation with developing countries principally in Africa.

The main difference between small or medium scale farming and industrial farming lies in the target of production. Small or medium scale rabbit farming units are multipurpose units mainly organised to provide rabbit meat for breeder's family consumption, to produce some rabbits for the local market and by this way to save some cash income, to provide organic fertilizer for the other activities of the owner's farm and in some cases to make a buffer to face unexpected difficulties of the farm or of the family (Raharjo, 2008). On the contrary the main target of an industrial rabbit farming is to produce rabbit meat in answer to a demand of the market (local, national or international), and to obtain a correct payment for the work spent in the rabbit production system. The objective of this paper is to formulate some propositions to upgrade the situation of one or some groups of rabbit farmers, not of single units.

The project would began with an initial open meeting of the farmers potentially included in the project in order to fix the main objectives and to determine a first list of farmers "interested" in the project. If they are only very few (less than 5) the project can be considered as finish and the promoter can return to other activities.

The general objective of production must be clear for everybody, without mixture between targets. Effectively rabbits could be raised for

- *Meat production*: young slaughtered at 50-60% of adult weight when 2.5 to 4 month old, utilisation of rabbit lines selected for meat production (numeric productivity, growth rate, carcass quality). Skin is a by-product with very low value because it is not mature at this slaughter age (fur moulting its hair)
- *Fur production*: sub-adults slaughtered when fur is mature, *i.e.* when rabbits are 5-6 month old, utilisation mainly of Rex rabbits. Carcass is a noble by-product, but clearly a by-product
- *Wool production* : adult never slaughtered, wool harvested periodically from Angora rabbits
- *Pet production*: should be reserve to dwarf rabbits, the prettiest of all rabbits.
- *Purebred rabbit* for shows and exchanges between breeders. Selection is made in reference to breed standards based on external appearance not necessary in relation with productivity.

In the present paper, the unique target of rabbit rearing would be meat production. I consider that for an industrial farming, any type of mix between 2 or more of theses 5 types of rabbit production would be necessary prevent the economical optimisation of the system. The only situation where it is acceptable is to separate 2 "independent" groups for all the production aspects, and to have only a common marketing service.

B- Evaluation of the initial situation

Before to propose any type of modification, it is necessary to evaluate the situation in relation with 2 main points: 1/ to determine the productivity of the existing system and 2/ to have a fine description of the technical and economical environment of the rabbit farms, and particularly of the real ability of the market to absorb the production.

1- The existing situation in rabbit farms and farmers motivation

First of all it is necessary to make an evaluation of the present situation in farms. This corresponds to 2 sub-targets, 1/ a "photography" of the present methods in use for production (general description and variability among the different farmers) and 2/ a quantitative and qualitative evaluation of the production, week after week and also on a year basis.

The "photography" should be achieved through visits of the different farms and the description of the setting up of each production unit. It would be the occasion to ask each breeder individually on his personal interest in the project, on his motivation and on his will to change something in his production habits. This description must include a description of cages and buildings if any, the normal management of the rabbitry, the genotype/phenotype of rabbits used, the source and types of feeds used for rabbits feeding, and the time spend by day or by week for rabbit raising, including the time to collect fresh vegetables if some are used and the time to cure the rabbitry and put the manure away from de production unit.

The productivity of the rabbit production units would be measured during one year at minimum by the way of a technical-economical management registration. It means on a monthly basis to record at minimum :

1. the number of adult rabbit present at the beginning of each calendar month (males and females separately),
2. the number of young adults introduced in the rabbitry during the month and the number of adults culled or dead,
3. the number of matings and of kindlings during the month,
4. if possible the number of young born alive during the month (addition of kits born in each litter),
5. the number of young weaned during the month with indication of the variability and average real age at weaning,
6. if possible the average weight of weaned rabbits, but it is not essential,
7. and the most important : the number and the total weight of young rabbit sold (or eaten by the family) per month and if possible the price and the age of young rabbits.

Points 1 and 7 are the most important

These determinations have for main objective to know the real potential of production of the group of farmers, and to know the possible margin of progress: the lowest is the present productivity, the easiest would be the first steps of progress.

The questions about the farmer's motivation are justified by the necessity to have a good homogeneity of the initial group of farmers. Effectively, the creation of an enterprise by lifting up the existing small and / or medium scale units of production could be viewed with confidence only if all farmers of the group share the same ideal which could be summarized in 3 key points:

1. **Autonomy in decision: a group managed by producers in the interest of the producers themselves.** Any project with an external centre of decision has very few chances to succeed.
2. **Solidarity between members of the group, to create a common project, a common enterprise.** The creation of the enterprise would not be the objective itself but the mean to improve and / or secure the individual situation of each farmer.

3. **Training of the farmers:** by exchange between farmers and progressive inclusion of new techniques or management methods observed outside of the group, the whole group will progress.

In few words, the group has to work for itself, but with eyes widely open on the exterior of the group

At this point of the present paper, it must be pointed out that methodology for creation of a completely new enterprise of rabbit meat production is other problem requiring other conditions than those necessary to create an enterprise by lifting of an existing group of farmers. One example is informative about the role of the breeders and correlatively of the management. In Egypt, Ibrahim *et al* (2000) have compared the performance between a group of 30 small rabbit holders interested in rabbit production (3 does per breeder) and a large unit working with employees. After one year and with the same animals and the same management technique, the better results were clearly obtained by small holders (table 1). This demonstrates clearly that determination of farmers conscious to work for themselves is a strong factor of success, even in small units.

Table 1 : *Some performances obtained in one year by small Egyptian farmers and by a large production units, both utilising the same type of rabbits, the same feeds and the same general management (according to Ibrahim et al. , 2000)*

Parameters	Small holders ¹	Large unit ²	Signification
• Kindlings per doe and per year	6.74	5.66	**
• Matings per kindling	1.60	1.67	ns
• Born alive per litter	6.32	5.58	**
• % birth to weaning mortality	14.9%	24.8%	**
• Weaning weight (g) at 30 days	573 g	512 g	**
• Slaughter rabbits at 90 d. /doe & /year	37.9	25.6	**
• Live weight produced /doe & /year (kg)	71.7	45.4	**

¹ *small holders* N= 30 (90 does in total)

² *large scale rabbitry* N = 1 (90 does in total)

We have in France the success story of an initially small group of rabbit farmers which, with application of the 3 key points described above, has become after less than 20 years the first French enterprise of rabbit production. In 1981, a group of 11 rabbit farmers + 1 technician working half time with the group, decided to work together with the 3 keys points as rule. The first year altogether they raised 3200 breeding does in total and have sold 176 000 slaughter rabbits. In 2008, in form of a cooperative exclusively devoted to rabbit meat production (the CPLB) the group has increased his member's number up to 220 farmers. They keep about 135 000 breeding does producing yearly about 7.5 millions slaughter rabbits. The enterprise has 45 salaried employees, a centre for artificial insemination (30 000 doses / week), a centre for the multiplication of selected rabbits lines (production of 3000 young breeding does per week), and a financial participation in 2 big slaughterhouses specialised in rabbit slaughtering and commercialisation. It is now the biggest French independent enterprise of rabbit production. Last year they have contracted technical and commercial relation with an other group of farmers of the same region (working inside of a more general cooperative) to constitute a conglomerate of 350 rabbit farmers producing 10.5 millions of slaughter rabbits per year with about 190 000 breeding does.

This success story has demonstrated the importance of the group cohesion acting as a community, but it was developed in the French technical and economical conditions of production, and France is clearly not a developing country. The Egyptian example has demonstrated that small units may be technically more efficient than a large one in the conditions of the experience. So in the case of developing countries the environment is in a large extent different from one situation to the other; it must be carefully analysed and then taken in account for the enterprise creation.

2- Evaluation of the farmer's environment

This part of the evaluation is not as clearly defined as the previous one. Nevertheless one first point is to evaluate the geographic homogeneity of the group. Effectively if the different farmers have to work as a group they must have regular technical meeting and must have the possibility to visit each other. My practical experience is to propose a maximum distance of one to one-and-a-half hour of journey between the most external implantations. The physical distance in km corresponding to 1 or 1½ hour depends of the quality of the country roads and of the main local means of transport: by walk, with a donkey; a bicycle, a motorbike, etc...



figure 1: *The farmers must have frequent meetings to exchange information*

The other aspects concern the possibilities and access to the different supplies and condition of access to the market:

- Are fresh or preserved vegetables or forages available: type (*i.e.* nutritive value) seasonality of production, distance from the rabbit production units? Are they natural or cultivated? What is the competition with the other animal production for the access to these forages?
- What are the other local feed resources (agricultural or agro-industrial by-products) ?
- Are specific rabbit pelleted feeds locally available?, and if yes is the quality correct and the price "acceptable" ?
- Are the roads of good quality? I personally have the experience some years ago of difficulties of rabbit production in Mexico directly related with a low quality of the roads: good quality pellets leaved big feeds plants on trucks but arrived half in dust in the rabbitries because of the numerous potholes of the roads in the country and of a too long distance between feed plants and rabbit production units (frequently 300 to 400 km).
- Is electricity available for all farmers: power, regularity, ...at which cost ?
- Are available drugs specific for rabbit production and rabbitries disinfection?
- Are extra workers available in the village for some specific tasks in the rabbitry?
- What is the "normal" presentation of rabbits when sold: alive, in carcasses, cut in pieces?
- Are one or some rabbit slaughterhouses in activity in the region?
- Are the rabbit presently sold by farmers at home, at a local market in the village, in the nearest town, etc...?
- Is there some people who comes in the different rabbitries to collect rabbits directly from the farmers?
- Etc...

C- First step : Lifting of the group's organisation

Without changing the general production habits of breeders and with very few investments, the first step to go to an industrial rabbit production system is to group the greatest part of the buying activities and of the selling activities.

That means for example a collective purchase of pelleted feeds from the factory (reduction of cost per kg by increasing the total bought quantity, reduction of transport cost, possibility of discussion of feed quality ...). The same can be done for raw feeds, for medicines and for really improved breeding stock if such rabbits exist in the country.

The most important part of this first step would be a collective commercialisation of the rabbits. The minimum is to fix a selling price common for all producers of the group, for the week or the month, etc... according to the local method of price fixation. If somebody asks one of the breeders to buy some rabbits, the price would be the same than for rabbits sold by on other breeder of the group.

A common commercialisation can mean the regular collection of rabbits ready for slaughter from each producer and to sell them together to the same buyer or to different buyers which could be placed in competition. In this case it is out of the question that some farmers sell individually their rabbits when the price is high and ask the group to sell their rabbits when the price is low and the sale difficult. Solidarity between members must be complete and continuous (remember key point 2)

It is also possible that the group signs more or less long term contracts of production / supply with some specific buyer with guarantees on volume and price fixation.

This collective commercialisation may be also the possibility for the group's selling responsible to anticipate the commercialisation if he knows the future availability of slaughter rabbits for the next weeks and even months. *E.g.*, if he knows the number of litters born within a certain short period and the average technical efficiency of each breeder or of the whole group, he would be able to program the selling of a known number of rabbits 2 and even 3 month later if the average slaughter age is 3 month. On the contrary, if he knows that at a certain period the price of rabbits would increase because of a higher demand (at the occasion of religious feast for example) he could urge the breeders to make their maximum to obtain numerous fertile matings 4 or 4½ months in advance in order to have a maximum of slaughter rabbits available just on time (for example culling of low producing does and immediate replacement by young ones ready to produce)

On the opposite, if he knows that at a certain period the price of rabbits on the market would become too low to cover the production costs, he will inform the group of breeders 5 to 6 month in advance so that they could reduce or forward their production for this period. It could be for example the time to renew the breeding does and to clean the rabbitries before the introduction of new breeding does. It could be also the occasion to feed fattening rabbits (not the breeding does) with low cost feeds (forages, ...). This solution would permit reduced growth rates (delayed putting of rabbits on the market) without increase of feed expenses. Nevertheless, please remember that an increase of the fattening period even with a low cost feeding system may increase as well as decrease the feeding cost of a ready to slaughter rabbit, in function of the real nutritive value of the utilised food.

D – Second step: Lifting of the farmer's production methods

If it appears that farmers of the group are able to work together it could possible to go on with the project and engage the second step. First of all, the common work for supplying and commercialisation, the exchange of information about the production of the different farmers will create an internal stimulation and the most efficient breeders would serve of model for the others. This will permit a more homogenous and as a consequence more predictable production. That's good but no sufficient to create a real industrial enterprise.

An industrial enterprise could be characterised by the regular quality of its production and by its ability to adapt this production to the market's demand: *i.e.* to produce what is quite still sold in advance and no to try to sell a production only because it arrives at its final step.

1- Technicians and technical work

To ensure the quality and suitability of the planned production for all the farmers, it is necessary that the group appoint one or some technicians, depending of the dimension of the group. A good solution, is that these technicians employed by the group were themselves former (efficient) breeders. The other solution is to hire graduate technicians.

The first function of these technicians would be to visit regularly each farmer 1/ to deliver some individual technical advice when necessary and 2/ to collect information about conditions of production in order to make the recording of all technical-economical parameters listed above. During his visit the technician will also return to each farmer the analysis of his own previously registered data. The second function of the technicians is to analyse, compare and synthesise these registrations - a computer would be very useful - and discuss these results first with the staff of the group. Afterwards, results would be presented and discussed within the group of farmers, in periodical meetings (every 2-3 month for example). According to the total number of farmers, these meetings could be general or section meetings. These "technical" meetings would be the occasion to point out collectively the better results (with name of the farmers, it could be constitute a model for the others) and the worst (possibly anonymously in that case, it's not a tribunal) and to propose as far as possible explanations and solutions. These 2 last points are very important for the lifting up of the group.

The points that could be improved following visits and/or meetings depend widely of the initial situation and of the technical level of farmers. Some examples are given below. It may concern

- the quality of the equipment, *e.g.* modification of the cage floor for a more suitable one, introduction of feeding racks for forages, ...
- the quality of material management, *e.g.* quality of cage cleaning, frequency of disinfections...
- the reproduction management, *e.g.*, grouping of mating in only one or two consecutive days per week which implies grouped kindlings and weanlings, and more, makes possible the adoption of newborn kits between litters and the equalization of litters. Improvement of reproduction follow-up can also be searched *e.g.* in a more efficient gestation diagnostic by palpation through training of farmers.
- an improvement of airing and ventilation of the buildings, or utilisation of open –air systems could be proposed and tested
- the adoption of controlled and coordinated distribution of pelleted feed and forages.
- a formation of farmers on the nutritive value (energy, proteins, fibre, ...) of the different forages and by products locally available, ...
- the promotion of automatic watering in order to propose to rabbit drinking water of better quality
- a formation of farmers to a early diagnostic of the most prevalent rabbit diseases in the area, and indication of appropriate interventions, ...
- Etc, etc ... the list is quite infinite.



Figure 2 : For example it is generally well-advised to change watering in a plate to a semi-automatic or automatic watering system providing clean water to rabbits

2- Sale and marketing person, commercialisation

The person in charge of the commercialisation of the rabbit is the keystone of the enterprise. His work consists in the research a permanent appropriateness of the market demands for rabbits to the possibilities of production of the enterprise, and vice versa. He will discuss and finally adopt the selling price for the whole group of farmers. At the occasion of the payment of the rabbits sold, the enterprise must take some small (but justified) percentage of the transaction. It would be the main source or frequently the only source of financing of the enterprise to pay it's employees (technicians ...) and to finance the general investments make for the community. Directly related with this job, the sale and marketing person has to search and find new outlets for the rabbits (better price, more appropriate quantities, ...). According to the importance of the enterprise, these "new" market opportunities could be local, national or international. At each level he must be taken in account the activity of the other enterprises proposing similar or rival products. He has also to return to the farmers the remarks made by the real or potential buyers about the quality or quantity of the product.

3- Functions of the staff of the enterprise

In addition to the general management of the enterprise, the staff (mainly farmers of the group) will search contact with suppliers of the farmers, and as frequently as possible to finalise contract and if possible rebates for the different supplies: feeds, selected rabbits, medicines, cages, etc.... One of their roles is also to contact banks to facilitate obtaining of loans for the farmers of the group which present reasonable projects. In this part of their job, the staff members must be helped by the enterprise technicians to evaluate the suitability of each project. They can also propose to members pre-studied more or less standard projects of development, which are known to be efficient (with a good breeder) and accepted by banks for loans.

As in the example on the French CPLB shortly exposed above in section B, the staff may also propose to the farmers (in general meeting) the inclusion of one part of supply activity in the normal activities of the enterprise. This could concern *e.g.* the multiplication of selected lines on order to propose to farmers high quality reproducers, males and / or females, at the minimum price. It could also concern for example the production of pelleted balanced feeds. I could also concern the creation of a slaughterhouse if this type on facilities is not locally available, but necessary to commercialise rabbits in carcasses or in cuts.

I work since a lot of years with a group of rabbit breeders in a central region of Benin, and after analysis of the general situation it appeared that the main limiting factor to the development of rabbit production in the area (5 villages) was the local availability of good quality balanced feeds at a correct price. The locally available so-called complete feeds were of too low quality (nutritive imbalance or utilisation of polluted ingredients) or, if correct, at a widely too high price. So it was decided to create a small unit for the production of pelleted feeds for rabbit, working exclusively with local products. This works correctly now and the breeders are increasing their production and profits. The negative part of the development of this small feed factory was that farmers were not able to finance themselves



Figure 3 : *Transport and drying of tree-forages widely used for the locally manufactured rabbit pelleted feeds (source of fibre and proteins)*



Figure 4 : *First use of the pelleting machine*

the whole project. The creation was finally possible only with a financial help of a French NGO representing two third of the project. But the obtaining of this source of finance was the result of the staff activity.

E - Conclusion

At the end of this short paper it could be remembered that it is possible to transform a local group of rabbit farmers into an enterprise of rabbit production. But this supposes a lot of conditions by which one of the most important is the acceptance by ALL farmers to work together on a really common objective. The second idea to keep in mind is that this lifting up will be progressive and will need a long time measured in years not in months. So the determination of farmers must be hard and continuous.

References cited

Raharjo Y.C., 2008. Strategy on the development of small- and medium-scale rabbit farming based on farmers cooperation. A case of rabbit production in Indonesia. *Proceedings 9th World Rabbit Congress, Verona - Italy, 1609-1613.*

Ibrahim M.A.R., Kahlil H.M., El-Shamaa I.S., Abdel-Glil A.A., Hamed E.S, 2000. Productive and reproductive performances of rabbits raised by small holders in rural development Egyptian villages or raised in a large scale rabbitry. *Wld Rabbit Sci., 8, suppl. 1B, 97-102.*

=====