THE IMPROVEMENT OF THE OCCUPATION LEVEL OF THE WORK FORCE IN THE ROMANIAN APIARIAN EXPLOITATIONS

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Abstract

This paper wants to determine the main ways to improve the occupation level of the workforce in apiarian exploitations. The research methodology utilized comprised two stages: the Delphi method and the case study. The identified ways for improving work force occupation level are: utilizing temporary work force, time shifting apiarian works, increasing work force productivity, outsourcing of activities specific to apiarian production, internalization of activities related to apiarian production, diversifying apiarian production.

Key words: Apiarian economy, work force occupation.

MATERIAL AND METHOD

Given the dependency of apiarian works to the optimal execution period periods in which the works is fully occupied and periods in which the occupation level is reduced are registered. The periods in which the entire work force is utilized determines the maximum dimension of the apiarian exploitation. Instead, the period in which the work force is not fully occupied determines losses (Ştefan, G., 2007).

The ways of improving the occupation level have been elaborated using the Delphi method at which experts in agrarian economy, apiarian technology, rural development and economic analysis participated.

Verifying the proposed solutions has been realized on the basis of the case study in an apiary with a 120 bee families effective that practices the mixt maintenance system – short distance pastoral and stationary – produces and commercializes bee honey.

RESULTS AND DISCUSSIONS

The main ways of improving the occupation level of the work force are:

- Utilizing temporary work force;
- Time shifting apiarian works from the periods in which the work force necessary is higher than the available work force – flattening the curves of the work force necessary – in the boundaries imposed by apiarian technology;
- Increasing work force productivity through investments in performing equipments and continuous professional training;
- Outsourcing activities specific to apiarian production;
- Internalization of activities related to apiarian production;
- Diversification of apiarian production.

The utilization of temporary work force represents an efficient way of increasing the degree of usage of the work force. This implies raising the apiarian exploitations` dimension to the minimum level of usage of work force in the season and the supplementary necessary of work force will be ensured by temporary workers.

This procedure can be applied for the unqualified work force but the qualified work force is usually occupied in the apiarian season peaks.

If there is, maybe, real work force availability in the apiarian exploitation proximity, it represents a sure way for its rentabilization.

According to the data calculated in the technological charts for the exploitation in which the case study has been realized, a qualified beekeeper seconded by an unqualified worked can maintain 117 bee families. We specify that this dimension is possible to maintain in the condition in which the beekeepers allocates the entire work force in apiculture.

This exploitation dimension has been determined so that in less than a month the work force necessary should not surpass the available work force, or the occupation level should not surpass 100%.

If in the apiarian exploitation there is qualified work force – professional beekeepers – this might be utilized in the peak periods allowing the growth of the bee families effective (*fig. 1*).

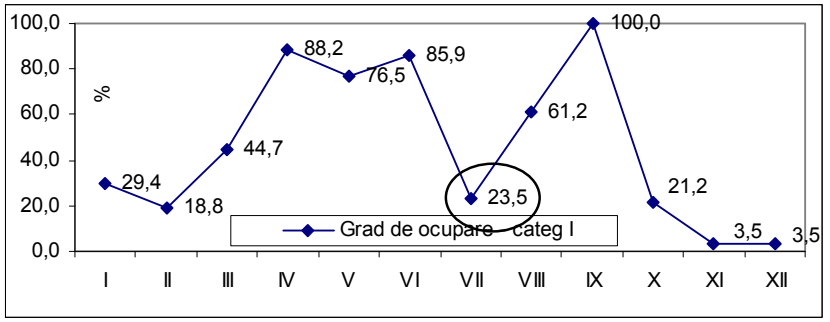

Figure 1 **The evolution of the monthly occupation level of qualified work force**

Theoretically, the bee families effective can grow to the level to which the work force available of the beekeepers is utilized, or the occupation level in the months with the minimum of necessary is 100% (Mărghitaş, L. A., Dezmirean, D., 2007). Considering that the minimum necessary work force is registered in November and December results that this is the level at which is determined the bee families effective. Still, qualified labor is capitalized in reality in the apiarian season in which interventions in the bee family take place. That is why we will consider the minimum level that registered in October in which the occupation level of the qualified work force is 20.2%

In these conditions, the maximum bee families effective that a beekeeper can maintain that utilizes qualified and unqualified temporary work force is 566 bee families (*fig. 2*).

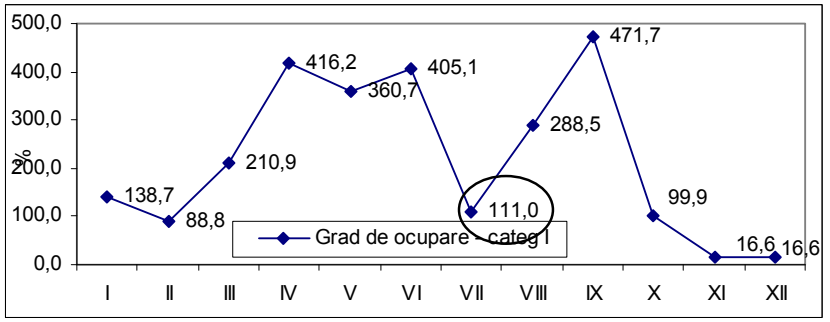

Figure 2 **The evolution of the monthly occupation degree of the work force for a exploitation with a 566 bee families effective**

This will have to solicit the work force of four other qualified beekeepers to cover the necessary work force from the months of April, June and September, three in May, two in March and one in January and July.

The presented option is optimistic. The reality is that the beekeeper doesn't have the certainty that they will find available work force when this will be needed and the utility for this calculation is reduced to the presentation of a way to utilize temporary work force.

Of course, if stable temporary work force exists in the proximity of the apiarian exploitation, and the maintained bee families effective will be determined depending on this availability (*fig. 3*).

For example, if in the vicinity there is a qualified beekeeper that is being hired on a temporary basis in the apiary in the previous example, than the owner beekeeper will be able to maintain an effective of aprox. 240 bee families if he utilizes unqualified work force also.

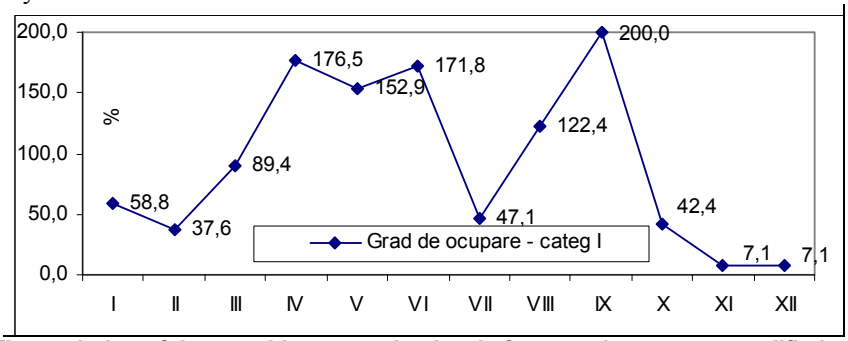

Figure 3 **The evolution of the monthly occupation level of own and temporary qualified work force**

It is also necessary to know that once we increase the number of unqualified and qualified workers, the beekeeper must realize other activities such as organizing the work crew, monitorization, leadership etc. These activities will occupy a part of the own available time in the apiary.

The time shifting of apiarian works represents another way of increasing the occupation level of work force. This implies the realization of some apiarian works in the months with high work force necessary in another period in which the work force occupation is inferior. An example can be represented by the time shifting of the transfusing work of bee families in disinfected hives that is realized in September in the Northern part of Romania and can be shifted in October in the apiarian exploitations in the Southern part of Romania.

In these conditions, the necessary and occupation level of the work force will decrease in September and the occupation level in October will increase (*fig. 4*).

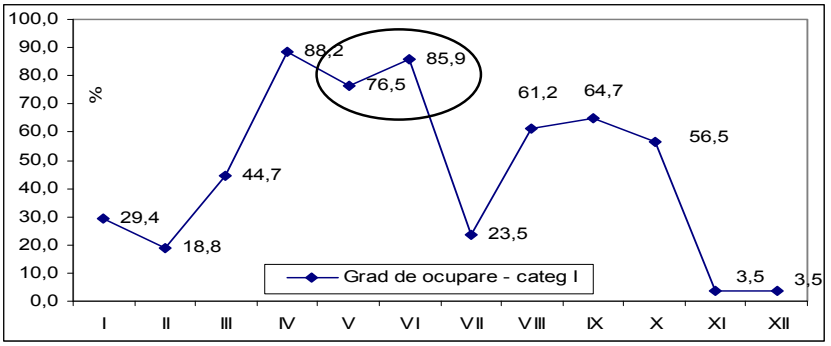

Figure 4 **The occupation level after the transfusing work of bee families**

Although the work force consumption is the same, its curve has flattened determining its uniformisation in August – September.

In these conditions, the apiary dimension is no longer dependent to the occupation level of the work force of the beekeeper in September but with that in April.

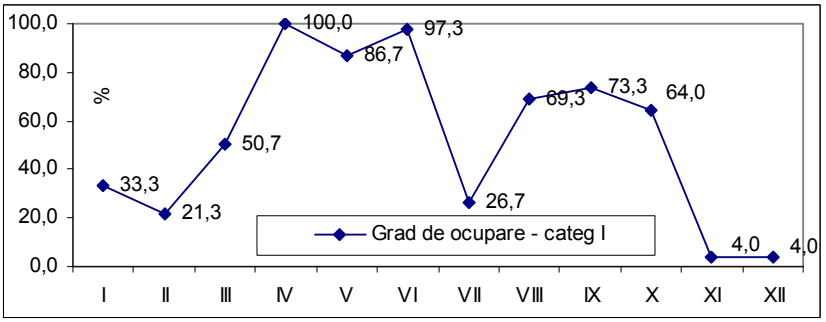

Figure 5 **The occupation level after the recalculation of the bee families effective**

If the monthly maximum level has decreased than the bee families effective has increased. In these conditions, it registered a growth of 16 bee families reaching 236 families (*fig. 5*).

Surely that the increase of the occupation level of the work force is not the only objective after which the optimal dimension of apiarian exploitations is set, but it must represent one of the most important criteria together with the level of fructification of the capital and meliferous resource.

The improvement of work force productivity is an objective which aims all apiarian activities and consists of reducing the work force consumption necessary per work and per bee family (Lazăr, Şt., Doliş, M., 2004).

So, utilizing the previous example, if, at each work that implies the intervention in the bee family, the necessary time for opening the hives will decrease by a minute, the work force consumption of qualified work force for an apiary of 120 bee families from 118.3 man/days to 110.5 man/days (*fig. 6*).

Another alternative to the uniformisation of the qualified work force necessary is represented by the increase of productivity for big work force consumer work. If the work productivity for a certain work will increase, a reduction of the necessary time will be produced for that work and for the costs related to the work force.

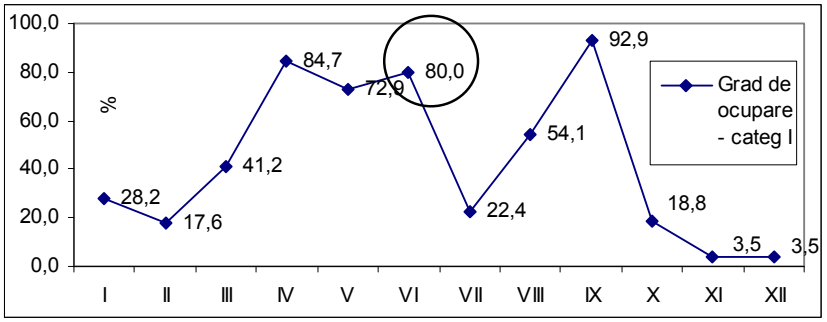

Figure 6 **The occupation level after the reduction of necessary time for intervention in bee families**

In the case study it been proceeded to the reduction with 10 minutes of the necessary qualified work force for the work "The transfusing of bee families in disinfected hives" which leads to the reduction of the occupation level of the work force in September from 100% to 88.2% (*fig. 7*).

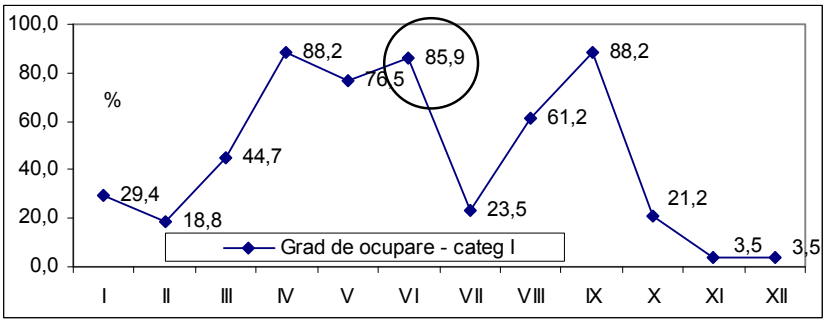

Figure 7 **The occupation level after the reduction of necessary time for the work "The transfusing of bee families in disinfected hives"**

In these conditions the qualified work force necessary for an apiarian exploitation that has 120 bee families dropped from 118.3 man/days to 115.8 man/days and flattened the occupation level curve. Also, it increased the maximum dimension of the apiarian exploitation with 16 bee families.

Even if beekeepers don't benefit of this procedure to grow the exploitations dimension that they administer, the uniformisation of the qualified work force necessary can lead to the improvement of other performance directions such as losses reductions, the improvement of quality of products and apiarian services or the development of their commercialization methods.

The outsourcing of some activities specific to apiarian production which are big qualified work force consumers represents another improvement procedure of the occupation level of the work force by flattening the necessary peaks. This measure must be accompanied by the increase of the volume of activity of the apiarian exploitation through by increasing the dimension or realizing related activities.

Even if it is not sufficiently relevant and practical, we will analyze an example related to "The administration of stimulation feeds" These works consume in September aprox. 3 man/days of qualified labor for preparing sugar syrup or other similar products and distributing it to bee families. If the syrup would be prepared by a third party the work force consumption would be reduced to 1 qualified man/day cumulated.

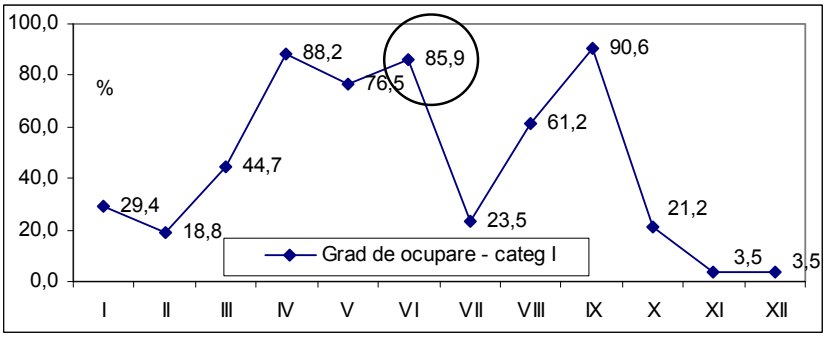

Figure 8 **The occupation level after the outsourcing of the preparation of the syrup for the work "The administration of stimulation feeds"**

So the occupation level for September dropped with 9.4% at a comparable with April and June (*fig. 8*).

Even if through this procedure the expenses level would not be reduced this would permit the increase of the exploitations dimension with 12 bee families that would determine a better fructification of the disposable work force. This phenomenon is quantified through an increased of the annual occupation level of the qualified work force from 81.8% to 87.4% (*fig. 9*).

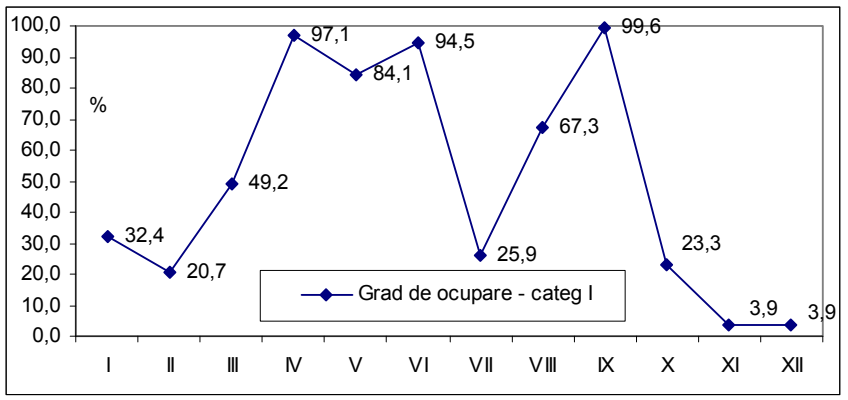

Figure 9 **The occupation level after the apiarian exploitation dimension increase following the outsourcing of the syrup preparation**

The internalization of some activities related to apiarian productions consists of increasing the occupation level of the work force by introducing some works that will determine an increase in the income volume such as:

- The primary processing of apiarian products; Bottling and labeling of apiarian products;
- The promotion of apiarian products and services;
- The transport of bee families in pastoral etc.

These activities will be realized in the periods in which the occupation level of the work force is reduced. The result consists of reducing the increase of the level of the income by increasing the price or the production by bringing the production to standard (STAS). In other situations the level of material expenses or with services can be reduced, such being the case with the internalization of the transport service.

For example, if an apiary with a 120 bee families effective that practices the pastoral maintenance system decides not to use transport services but to transport the hives with their own vehicles will beneficiate of a series of advantages and disadvantages.

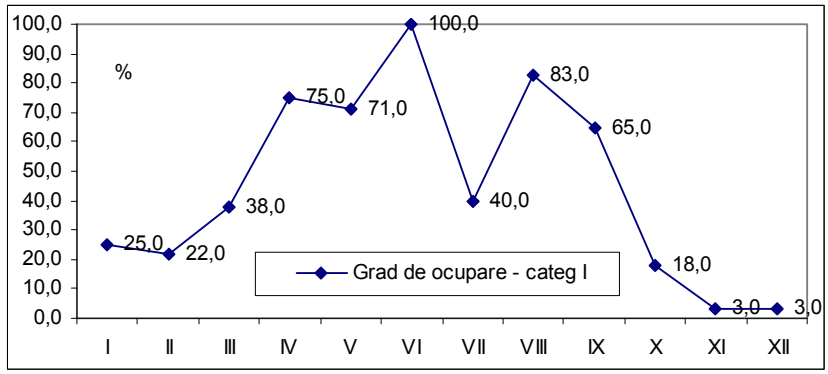

Figure 10 **The occupation level before the internalization of the transport service at an exploitation with 120 bee families in pastoral system (8h/day)**

The necessary work force increases in June when a necessary peak is registered, but also in May and August. In this case, the annual occupation level increased with 0.5% but the maximum exploitation dimension decreased because of the necessary in June for 101 bee families (*fig. 11*).

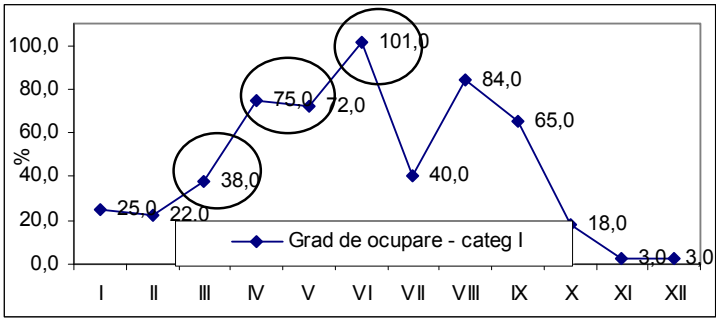

Figure 11 **The occupation level after the internalization of the transport service at an exploitation with 102 bee families in pastoral system**

This solution must be correlated with the analysis of own costs of the fixed mean in comparison with utilizing transport services. In its turn the vehicle will be more utilized through this measure (*fig. 12*).

The diversification of apiarian production includes in this area of activity diversification by introducing in the production system some main products or obtaining secondary products that will be capitalized (Mărghitaş, L.A., 2002).

Through the production diversification the resource necessary will increase, therefore the work force necessary will increase. The increase of the work force occupation level through production diversification is possible by introducing in production the products that don't require permanent work force.

If obtaining the supplementary products implies continuous work consumption than the work force occupation level will increase even in the periods in which it reached the maximum value. Consequently, the bee families effective that can be maintained with the present work force will be reduced and the medium level of its usage will remain constant. For this reason we will proceed to the introduction in production of some products than require discontinuous work force even in the period agreed by the beekeeper. Such a product is propolis. This product can be harvested in the periods in which the work is not fully utilized.

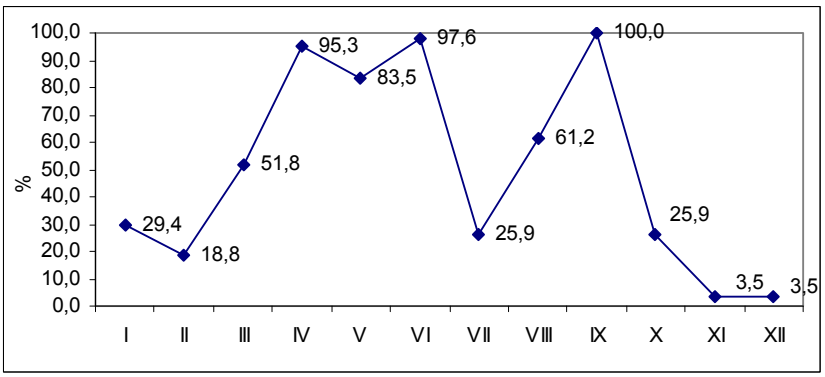

Figure 12 **The occupation level after introducing propolis in the production system**

Assuming that the obtaining of propolis takes place at every intervention in the bee family and the work force necessary will increase by 2 minute at every work that the annual occupation level of the work force will increase from 45.3% to 49.7% (*fig. 12*).

Increasing the work force necessary has been produced in the active season when interventions with a longer duration in bee families can take place and September has been avoided when the maximum work force necessary is registered.

This procedure can be extended through production diversification that requires work force in the cold season or in the periods with low work force consumption.

CONCLUSIONS

The main ways of improving the work force occupation level are the utilization of temporary work force, time shifting apiarian works from the periods in which the necessary work force is higher than the available work force, increasing work force productivity by investing in performing equipment and continuous professional training, outsourcing some activities specific to apiarian production; the internalization of activities related to apiarian production and the diversification of apiarian production.

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