S U M M A R Y

RESEARCH REGARDING THE EFFICENCY OF OBTAINING THREE PARTURITIONS IN TWO YEARS, FOR THE BREED RED FACE TSIGAI FROM COVASNA

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The current thesis aims to treat a major problem in today's zootehnics, namely in what extent farmers can work following the methods and traditional technologies of animal growth and exploitation and what alternatives they can have to face the permanent economical and market changes, to be able to survive and obtain profit.

If up until the Revolution in 1989, there were large state farms and both viable and functional research institutes, the transfer of the scientific research result was much easier and more natural, even if these experiments had or not positive and immediate financial results, in the context of the property transfer when both old and new farms appeared, but with private capital, any novelty or innovation is more difficult to verify or to be implemented if it does not end with a material benefit, directly and in the shortest possible time.

The idea of treating this thesis on the topic: "The efficiency of obtaining 3 parturitions in two years for Red face Tsigai breed" came from the reality ascertainment of the shepherds' life reality from the central region of the country, in Covasna, where, from father to son, the vast majority of Romanian people of Covasna were shepherds with impressive sheep numbers, of Red face Tsigai breed, predominantly the Red variety.

The Revolution surprised the owners of large flocks of sheep, with beautiful animals, however, without owning enough land to support them. The tradition allowed them to go outside in the summer, starting May (after Easter holidays), to Saint Dumitru (26.10), depending on the weather on mountain grasslands (owned by the State or city halls) and in autumn they were going down to stubbles and only during winter they were kept in the owner's sheds and stables. The few land owned was used for hay production for the winter time. All those who have been preoccupied to have beautiful animals and have not bought agricultural land on time are now either bankrupt, abroad or doing something else. Fortunately, there still are good householders and shepherds who kept the tradition and breed clean, being organized in the County Sheep Farmers Association, by which the official milk production is made, since 2009 and ACSAC, which has received accreditation to lead the Breed Book for Tsigai Breed, Red variety.

Subsequent to introduction, the present thesis contains two major parts:

In the first part, entitled **BIBLIOGRAFIC STUDY**, we wanted to highlight, from the special literature, aspects that are considered to be conclusive on the chosen theme.

Chapter I. – entitled, **THE SITUATION OF SHEEP GROTH NATIONALLY AND WORLWIDE**, presents the evolution of sheep numbers locally, nationally, at European level and worldwide and it is structured in three subchapters:

1.1. The situation of sheep breeding at national level

Statistics regarding the evolution of local sheep in 2007 are presented, but also the evolution at national level even since 1963 up until now.

1.2. The situation of sheep breeding at European level

Statistics regarding the evolution of sheep number at European level 2017 - 2018 are presented, Romania occupying a well-deserved third place, considering the total sheep number.

1.3. The situation of sheep breeding worldwide

Data regarding the continental situation of the sheep number are presented, the first place being occupied by Asia, followed by Africa and on the third place Europe.

Chapter II – entitled**, THE GENITAL SYSTEM FOR SHEEP**, presents the morphology of male and female genital apparatus, as well as their morpho-physiological reproduction particularities and it is structured in two subchapters and two sub-sections:

2.1. The morphology of male genital system is formed of an organ complex, which have the role of elaborating and transporting the sperm in the female genitalia.

2.1.1. The morpho-physiological particularities of rams

In this subsection is described the spermatogenesis process which comprises three stages: testicular, epithelial and uterine.

2.2. The morphology of female genital system

The ewe's genital system begins to operate with the advent of sexual maturity, when it elaborates the sexual cells and ensures the normal development of the fecundation, nidation and growth process of the fetus until parturition.

This system consists of essential organs, ovaries or gonads and the genital pathways or conduits are being represented through oviduct, uterus, vagina, vaginal vestibule and the vulva.

2.2.1. The morpho-physiological particularities of ewes

As with other species, sexual maturity depends on maintenance, nutrition level, breed precocity over which the influence of natural climatic factors of different seasons overlaps.

Chapter III – entitled, **THE SHEEP REPRODUCTION PARTICULARITIES,** presents particularities of the sexual cycle, the way of organizing the mounts and describes the reproduction systems, the notion of natural mount and artificial insemination, as well as some aspects regarding the planning of reproduction activity, about gestation and parturition. The chapter is structured in four subchapters and two sub-sections:

3.1. Sexual period

During the female oestrus cycles, a series of morphological, histological, bioenzimatic, metabolic changes at genital system level are being produced and followed by a differentiated behavior, which led the specialists to appreciate that the overall change between two identical phases represents the sexual (estrus) period.

3.2. Reproduction system and mount organization

Breeding system means a complex of technical and organizational measures ensuring the animals reproduction. According to the method of seamen deposition there are two breeding systems: natural mount and artificial insemination.

The choice and application of breeding systems and methods are determined by the farm activity profile, the breeding area, the sheep breed, the breeding program and selection.

3.2.1. The natural mount

It represents the reproduction system, which ensures the direct mating of ewes and rams. The mount – involves the use of both natural and conducted mount.

3.2.2. The artificial reproduction system

The artificial breeding – it is both a reproduction system and one of the most important factors in achieving the breeding process, by using intensively the most valuable rams and the fertilization of a large number of ewes in a mating period.

3.3. Panning of reproduction activities in sheep

Preparing rams for mount is a particularly important stage in carrying out this action and it is conditioning the success of the entire reproduction activity. It consists of applying a differential feeding and

maintenance regime, with the aim of bringing both females and males in "reproductive condition", namely the optimal condition necessary of starting the ovulatory heat for ewes and the sperm function for rams.

3.4. Gestation and parturition

The gestation length for sheep is between 146-148 days, however presenting a great genetic variability. It has a shorter length in multiparous ewes; for young ewes the gestation is with one or two days longer than for adult ewes. The parturition takes place in approximately 30-40 minutes. The contractions are frequent and intense, followed by the appearance of fetal covers, liquid elimination and the fetus expulsion.

Chapter IV – entitled, **THE HIGH-INTENSITY REPRODUCTION,** presents the main rapid way through which can be ensured the transformation of seasonal polycyclicity in annual polycyclicity, which makes possible obtaining parturitions throughout the year, hereby determining the raise of reproduction rate, which is the most representative appreciation index of economic efficiency in the development of a sheep farm and it is structured in two subchapters:

4.1. Organizing multiple parturitions

The method of organizing frequent parturitions has been applied with good results in certain well equipped Romanian farms, through the deseasonalisation of heat and by reducing post-partum anestrus (post parturition), associated with the early weaning of lamb, which favors arranging two parturitions per year and even three parturitions in two years, in order for the ewes organism not to be too much physiologically overused.

4.2. The deseasonalisation and inducing the estrus

It is determined by several factors as: genetic factor, the day-light length, lactation, the lamb presence, the feeding level and maintenance state, bio stimulating factors, application of some hormonal compounds.

In the second part, entitled **PERSONAL RESEARCH,** I have included the results of studies made during the years spent together with beautiful people, farmers and experts in various farms from Covasna County, most studies being made in Manisca Farm from Covasna, owned by Popica Georginan Liviu Induvidual Enterprise, as well as Magos, Berde and Dancs Farms.

Chapter V – entitled **THE PURPOSE AND RESEARCH OBJECTIVES,** is structured into six subchapters as follows:

5.1. The thesis purpose

It is represented by, establishing the efficiency of three parturitions in two years for the sheep breed Red-face Tsigai, establishing the implementation conditions and factors that contributes to the good objective performance, as well as the calculation of economic profitability of these activities, comparing with other livestock farms specialized on meat or on milk.

5.2. The farm's location and geographical position

The present study has been made in Covasna County, at Manisca Farm and Magos, Berde and Dancs Farms, near Covasna resort. This County located in the hearth of the country is a small county, however with an intensive agricultural activity, having an utilissed agricultural of approximatively 110.000 hectares, from which, at a sensitive rate of 50% - 50% is farmland, respectively permanent meadows.

5.3. The history and origins of Tsigai breed

Researchers R. Balevska and A. Petrov demonstrate that the first domesticated sheep on the territory of Bulgaria and South Europe is Tsigai and this is the oldest breed of the continent. The Tsigai appeared in Krit region of the Aegean Sea, from where it has gradually expanded throughout the Balkan Peninsula and from here on today's Romanian and Hungarian territory, and then, throughout Europe.

5.4. The morpho-productive characteristics

The main morpho-productive peculiarity of Tsigai sheep are the following: the robust structure, the body development is 40 kg for ewes record class and 50-55 kg for rams record class, middle-sized stature, slightly elongated head, with a slightly convex profile for ewes and slightly more pronounced for rams, middle-sized ears, horizontally worn, the majority of rams having strong and spiral horns, (approx. 17% have

small-sized horns), middle neck in length and thickness, middle-sized torso with a pyriform aspect, relatively narrow oblique croup, the gigot having a middle-small development, middle-sized length extremities, strong body-built and with right aplombs, elastic skin with no wrinkles, globular and symmetrical udder. Mixed meat-wool-milk production.

5.5. The research of biological material

If we start from the thesis title, the stars of the research work is represented by the sheep of the Red-face Tsigai breed, which we have been carrying out research on breeding activity, taking into account several work versions and analyzing the economic effects generated by them, however we have also considered the results of the reproduction activity of the specialized breed, Merino metis and Friesian, using the obtained data for both comparative zootehnical and economic analyses.

5.6. Working method

Considering the theme of the present PhD Thesis, we wanted to do a comparative representation of various methods of obtaining synchronization of ovulation in off season and the performance of the related mounts and parturitions, firstly in the same farm (Mănişca Farm) an on the same breed, but also in different farms (Magoş Farm and Popa Farm) on the same breed (Red-head Tsigai), as well as in different Farms with different breeds (Berde Farm with Merino Metiş and Dancs Farm with Friesian).

Chapter VI. –entitled, **STUDIES AND PERFORMED EXPERIMENTS,** is structured in six subchapters and five sub-sections, as follows:

6.1. COPL results in Mănişca Farm

In order to analyse the sheep effective amelioration in Mănişca Farm, regarding the milk production we have presented the maximum/medium/minimum quantities obtained in COP for 2014 versus 2018.

We have performed the control in the same days both in 2014 and 2018, respectively 15th of May in early lactation, 26th June, middle lactation and 7th August, to the end of lactation and the results have been noted in the tables below and graphically represented, to be able to see as clearly as possible the production pulse, in this case the milk obtained especially due to the heard amelioration activity, through different specific activities such as, pair matching, conducted mount, etc. using all the available data from the Official Production Control.

6.2. The result of main reproduction indicators of Official Production Control

In the first place, as working method, I have analysed the main reproduction indicators in Mănişca Farm, over three calendar years, throughout the farm, following to compare the results with the other variants studied.

The indicators taken into account are: Prolificacy, Natality, Fecundity, Mortality and Twin Lambing, for the entire farm, the date being centralized, the average value being used in comparing with the other Work versions, this being named and found within the study, as the Standard version.

6.3. The research result in Mănişca Farm

Starting with 2013, we have started the first experiments in Manisca Farm, in regards with the heat stimulation in off season through different methods, described in the literature and which I have named 1 to 5 Version, in order to easily identify in the thesis, the last three versions being included in the Three parturitions in two years, work scheme.

6.3.1. Version 1

In Mănişca Farm, in order to obtain heat in off season and lambs for sale for the Christmas Holidays, in 2013, together with Dr. Gaspar Ferencz, concessionary veterinarian, in Zagon county area, where Mănişca Farm is located, on ewes lambed in 2012, a little later and have not been mounted since autumn, more precisely per 50 heads, on the first of June, we have started the ewe's treatment with Proliz 0,1 ml/head injectable solution, in the morning at 08:00. The ewes were not supplementary fed or differently prepared for mount beforehand, nor were the rams.

At 45 hours of treatment, rams were entered in, the result being surprising even for us, 68% of ewes had fertile mount meaning, from 50 heads mounted, 34 heads got bred (Fecundity 68%). The ram's number was of 3 / 50 heads, meaning 6%, due to the short heat cycle.

6.3.2. Version 2

In the following year, 2014, this time with much more experience, but firstly with much more credit from the owner's side, the experiment has been repeated in the same period of the year on 100 ewes.

This time, the 1 ml/head Proliz solution administration was made together with ing. Cătălin Bârlă, trainee veterinary technician, employee of Mănişca Farm and its dependable man.

The young ewes treatment has been made first thing in the morning, when it's cooler and unlike last year, besides an appropriate addditional feeding, Flusing type, two weekd before, both the ewes and rams, we have tryied to influence the photoperiodism through keeping the ewes in a slightly darker and cooler place 4 – 5 days before, for 1 -2 hours in the morning and shelter them in the evening with 1 -2 hours earlier.

The weather has also contribute to our endeavours, the temperature significantly dropping with 5 Celsius degrees, with rains and grey weather, all this contributing to a better preparation for the female sheep.

After treatment, we have introduced 1 ram to 10 ewes (10%) and not 45 – 48 hours late, but in the next morning (24 hours).

We had great results, the fertile mounts percentage being of 79% (Fecundity 79%).

6.3.3. Version 3

The owner of Manisca's Farm, owns approximately 40 ha of alpine grazing at an altitude of 1677 m, in Manisca Meadow, near Lacauti Peak of 1777 m, at the border between Vrancea and Covasna Mountains. Here, the owner has built a traditional, durable, sheepfold built with round wood, covered with shingles, where he climbs every year with 400 – 500 young sheep, yearlings, ewes and barren.

The sheep flock goes up the mountain in May and descends depending on the weather, in the first days of October. The studied young ewes went up the mountain at the beginning of May, more precisely the 5th May, together with the rest of the flock.

The young ewes were separated from the flock in the first two weeks and fed more in shaded places, in a forest with plenty of Rumex acetosa and short grass rich in vitamins, at a temperature with almost 7 – 8 degrees Celsius lower than at the farm.

We have introduced the rams in the first day and we have permanently observed their behaviour and subsequent changes.

Both the ewes and rams have received 500 g per day per head extra feeding, Flushing type for 10 days, without having any extra costs for medication.

As expected, within 5 – 7 days, 85% ewes out of 100 heads were mounted (Fecundity 85%).

The density we chose was 1 ram for 10 ewes, out of the 100 ewes studied, meaning 10%.

6.3.4. Version 4

In this thesis I have opted for the first mount in May version.

To be able to respect the schedule proposed immediately after the winter holidays, until the New Year's Eve, on 27th December 2015, we have applied for all the 100 young ewes, now primipara ewes, Chronogest 40 intravaginal sponge type.

The operation had been started at 08:00, with the support of ing. Bârlă Cătălin and a sheperd, by 10:00 o'clock all ewes having the sponges applied.

Since this operation we have also started extra feeding with 500 g vitamin-protein concentrate and high quality hay, semi hay, semi grass silage wrapped in round bales.

On 10th January 2016, we have extracted the sponges, that is 14 days since applying and we have injected intramuscularly 500 UI, PMSG injectable Folligon type. The entire operation had been started at 07:00 a.m. by the same team and at 09:30 a.m. everything had been finalized.

In the second day, around noon, the first heat signs started to appear, in the second day after the morning milking, the 100 ewes were grouped in 15 stalls, 6 -7 per stall and one ram has been introduced in each stall by the "stall type" mount model.

The rams density in this case is 15%.

It must be mentioned that rams, in their turn have been extra fed together with the ewes getting prepared for mount properly, ever since November, with500 g concentrate feed/head/day (Flushing), with an intake of phosphorus, vitamin A, B3,E.

Having the experience of last years, in both Manisca Farm and the others, we have tried to induce as many exogenous factors as possible for inducing the heat, by using the photoperiodism, imitation of autumn conditions, for the last week the ewes were kept at the stable, with low light regime. In the evening, the doors will be slightly opened, with the feeding structure changed and supplemented (Flushing) to maximize all natural factors, along with the medication factors assured by the treatment.

From my own experience I have found that actually, if the rams are well prepared in stalls with 6 -7 ewes, it is enough to be left in there starting with the morning milking (07:00 a.m.) until the evening milking (19:00 p.m.) enough time to mount all females in the stall.

For young rams the norm is 2 – 3 ewes per day, however the well maintained mature rams can easily do 6 -7 jumps per day.

Therefore, we can consider the mount day 12th – 14th January being on schedule in obtaining 3 parturitions in 2 years.

Out of the total ewes, of 100 heads mounted, a number of 88 heads have remained gestant, twelve of them have repeated the heat. (88% fecundity) we consider the total ewes, the livestock studied.

6.3.5. Version 5

Out of the 100 heads which we started the research with in the 3rd Version, there remained in the study 88 heads, described in the 4th Version.

Similarly to the operations described at the 4th Version, in the same study "three parturitions in two years" the following actions have been carried out, therefore on 10th September we have reintroduced the Chronogest sponges, at 07:00 a.m. in the same team, using the same methods like in January, both flushing feeding in advance and using the external factors.

On 24th September at the first time, the sponges have been extracted and intramuscular PMSG Foligon type (500 ui/head) injection had been made.

At 48 hours on the same model we have introduced in 15 stalls (6-7 per ram head). The rams period of stay in the stalls was of 12 hous between the morning and evening milking (07:00 – 19:00). Out of the 88 heads, 75 had been mounted and 13 heads have repeated the heats after 17b days and have been mounted in the next cycle. (Fecundity 85,23%). The mount day has been noted as being 26.09.2019.

And this time, the mount has been made in stall, conducted and we have reach to the conclusion that through artificial insemination, we could obtain good results with much less effort and labor.

Past the gestation period in February starting with 28th to 5th March 2017 all ewes have lambed, with a case of lamb, born dead, meaning 74 heads, with 21 twin lambing with a number of 95 lambs out of 74 female heads, 50 young ewes and 45 young rams. (Prolificacy 126,66%).

Considering that in the 5th Version study, we have used the ewes from the 4th Version, with the parturitions and mount dates, 20th – 25th June the parturitions and 26th September 2016 the mounts, we can calculate the breeding index named Service – SP period, as the time from the last lambing to installing a new gestation, in this case having the value between 93 – 98 days, from case to case.

6.4. The result of research made, for 3 parturitions in 2 years

In 2005, in order to complete the present study, with the support of Manisca's Farm owner, we have started the work according to the three parturitions in two years organising scheme, described by prof. Tafţă in 1998.

The three parturitions in two years scheme results are practically included in the Versions described above, more precisely the 3rd, 4th and 5th Version, following to centralize the data and calculate the reproduction indexes of the scheme and compare them with the other Versions described, including the Standard Version.

The scheme has been practiced the a period of time between 9th May 2015, the date of the first mount, to 5th March 2017, as date of the last parturition, therefore 46 months, falling within the 2 years term, referred and considered.

For the analysis of this scheme we have centralized all the technical economic indicators data and analyzed the results, on each indicator for all Versions described in Manisca Farm study and I have also made their graphical representation.

6.5. The results of research made in Magoş's Farm

Another farmer in our study is Mr. Magoş Adrian, father to son traditional farmer, from Zagon, Covasna County and breeder of a very valuable Red head Tsigai herd, uniformed and well balanced with a number of 240 heads.

For studies made at the farm of Magos Adrian, the veterinary Gaspar Ferencz has been directly involved, who has started in good collaboration since 2012-2013 trying to induce the seasonal heat, in the first phase on a smaller number i.e. 50 heads the first year, then 100 heads and so on.

The logic of introducing heat in extra season was not to obtain 3 lambs in two years, but it started from the increased demand of lamb meat in the winter holiday season, at a price with at least 50% higher than the classical Easter holidays.

In the first two years, the procedure has been mainly applied, identical with Berde Joszef farmer, described below as follows: introducing the Chronogen sponges, intravaginal, in mid-April, in the first year for young ewes, then on young ewes and mothers 1/2, followed by extracting the sponges after 14 days and injecting the PMSG intramuscularly (500 ui), by which following another 48 hours the rams have been introduced into the herd: 1 ram/ 20 female.

At the first attempts, in 2012, the results of fertile mounts was of 60%, meaning, out of 50 heads, 30 of them have become gestated in the first year and 65% in the second year, 2013 when out of 100 multipar heads, 65 heads have become gestated.

Parturitions took place on schedule between 2nd-8th October 2013, with no mortality.

There were 10 twin lambing and a number of 75 lambs have been obtained, of which 36 young rams and 39 young ewes. Their body weight at birth was between 3- 3,5 kg.

In 2014, on 100 heads, at the beginning of June, more precisely on 3rd June, due to some economic reasons, the introduction of sponges has stopped and it moved forward straight to the intramuscular treatment, consisting of one dose of Proliz 1 ml/500 ui, solution based on Prostamol, early in the morning around 8-9 am and after 48 hours the rams had been introduced in the flock 7/100 heads sheep with a greater density.

Both ewes and rams have been fed further with concentrated feed, with 10 days in advance, following the Flushing methods, the sheep have been kept in shadowy places, under the forest trees etc.

The result has been significantly better and the percentage of the fertile mounts reaching 72% with the date of the mount being between 5th – 10th June 2014.

The gestation period followed naturally, in schedule between 6th – 12th November 2014, out of 72 lambed ewes, 70 had lambed, two of them being registered as mortalities.

Of the 70 heads, a number of 12 registered with gemelar lambing, obtaining 82 lambs, 42 being rams and 40 ewes.

The results of the technical economic indicators have been centralized, the average value was taken into account at the comparison of the data between farms.

6.6. The researches result made in Berde's Farm

In the researches made over the years, we have obtained eloquent results in Ghidfalău village, on a herd of Red head Tsigai, crossed by infusion with Merino rams, Texxel, Sufolk, Corrideli, (mainly Merino), animals belonging to Mr. Berde Joszef.

In 2015, with the help of the veterinary, Munteanu Teodor, on a number of 286 heads an experiment of inducing the off season heat took place in order to obtain lambs for slaughtering, 12-15 kg in casing, during winter holiday season. Therefore at 60 days from lambing, after weaning the lambs, at the beginning of July (2-3), the veterinarian, along with his assistant have proceeded introducing the Chronogest sponges intravaginaly.

At a 12 (max. 14 days) days interval, after the sponge removal, females have been treated with estrogenic hormone – PMSG 500 ui intramuscularly. At 2 max. 3 days from the PMSG treatment the rams have been introduces into the herd and in order to obtain the best results, they have introduced 16 rams to 286 female heads, with a higher density than usual to cover their best the short heating period of the females.

Under this circumstances, the fertile mounts has been of 214 heads, representing an approximate percentage of 75% of the total.

We can note the mount date between 17th-20th July 2015.

The gestation went normally, so that between 17th-20th November 2015, of a 214 total gestant females, 211 have lambed, 3 mortality cases being registered.

There have been registered 38 female heads with twin lambing, and a total of 249 lambs, of which 125 young rams and 124 young ewes.

For material reasons, we have attempt to stop using the Chronogest sponges and to skip this phase straight to the intramuscular Folligon, PMSG- based product with a dosage of 400 – 750 ui, depending on females weight.

In the following year, 2016 on a slightly smaller flock, comparing with previous year i.e. 275 heads, to the same owner and with the same veterinarian, they tried the off season heat induction, at the end of July, more precisely on the 20th July, this time.

After a break of 4-6 days necessarily for heat installation 15 rams have been introduced with a density of 18 female heads per ram, a higher density than normal, of 35-40 heads/ram in order to obtain best results for a short heat period.

The results have been as good as in 2016, when the complete technology of vaginal sponges had been used. Thus, of 275 heads, 170 had fertile mount, representing 62% comparing with 72% last year.

6.7. The researches results made in Dancs's Farm

In Covasna, in order to clarify these aspects, in addition to the studies made at Manisca Farm on Red head Tsigai, in parallel, comparatively, with the help of the Dancs Adrian family and his daughter, Dancs Esther, we can present the remarkable results obtained by artificial insemination at their farm on a 340 female Freisian breed.

The farm was founded along with the import of 150 Frisian heads, French females, imported by Dancs Adrian, veterinarian technician by profession, who after a long expertise accumulated and in Switzerland where he had the opportunity to work and practice on farms, he has invested in this business whose results are starting to show progressively.

Starting with 2016, they began to synchronize the heat, usually in April, in order to obtain the lambing in September, on a milk production technology with 7 lactation months off season, during winter period, when the price of milk and sheep dairy products is maximum 2.8-3 RON/liter.

Syncronizing has been made every year in middle March, more precisely in the first Wensday at 08:00 in the morning (22nd March) and the Chronogest sponges 40 mg have been introduced with the help of two farmers and two specialized persons and by 11 max. 12 the sponges have been introduced for the whole flock.

At 12 days, respectively Monday morning at 8 o'clock the sponges have been removed and PMSG 500 ui Foligon type has been intramuscularly injected to the entire female flock.

After 44 maximum 48 hours the first insemination has been made, followed by the second one at 52 hours. At 40 hours a test ram is introduced to detect remaining cases of delayed ovulation.

The percentage of obtaining heat ovulation of females was 80%-90%. If all these operations are preceded by an additional Flushing feeding with two weeks before introducing the sponges, the success rate is about 90%.

After the insemination at first heat cycle, 2-3 weeks a ram is introduced to detect the females that are repeating the heat and are not gestant. A great help would be the early heat detector by "to interne" analysis, measuring the isoelectric vaginal walls, device in the process of purchase.

In 2018, Mr. Dancs have also managed to purchase a mobile ultrasound, very useful for confirming and monitoring the female's gestation.

6.8. Results of economic efficiency research

At the end of this thesis I have recentralized the data of technical-economic indicators from the farms studied, the Standard Version and Three parturitions in two years, which we have compared with Magoș, Berde and Dancs Farms.

All this indicators have been individually analyzed and compared, by farms and we have also made their graphical representation.

Chapter VII. entitled **GENERAL CONCLUSIONS AND RECOMMENDATIONS**

In private sector, any system or technology applied in a farm is mandatory correlated with costs and profitability of applying them. Which is why, in this thesis, besides the description of technical results obtained, we have also referred to additional economic costs, relating to the new applied technologies.

As I pointed out in the study, a farm that is presently using breeding technology and classical exploration, with autumn mounts, selling lambs in spring time and milk in spring-summer time, with animals of autochthonous unspecialized breed, it can only have a financial exercise close to zero, or even on loss, the only salvation for these farms at this time being The State Grants given through APIA, on both animals, field, diesel etc.

The version described in this study, which represents the main theme of it is the Version of obtaining three parturitions in two years, study made on an autochthonous breed, Red head Tsigai and in which we could see that through intensifying the reproduction activity, inducing heat in off season, obtaining three production cycles, in two years generates considerable additional revenue, ensuring an increased profitability for the farm, this being the most efficient method to supplement income.

For Standard Version at Mănișca Farm we have seen that using pure breed animals, with controlled origin can generate extra revenue through selling breeding products at better prices than meat, increasing farm profitability.

We have also noticed during the study of improving reproduction indicators, through specific breeding work, by large-scale use of conducted mount, by matching pairs according to the individual results of the breeders and the characteristics that are to be improved, will ultimately lead to good financial results.

By studying Dancs Farm we have seen the importance of artificial insemination, activity that has been studied and well known in our country, however completely neglected lately, this farm being one of the few that practice this method on a large scale.

Under the conditions where the pure breed becomes increasingly important, the conducted mount and mainly the artificial insemination has a very important role in this field in future, especially because the Minister of Agriculture has a draft law project regarding a new grant for elite females that breed animals with origin.