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UNIVERSITY OF KAPOSVÁR
FACULTY OF ECONOMIC SCIENCE
Institute of Economics and Management
Department of Farm Economics

Head of Programme
DR. GYULA SZÉLES
Doctor of the Hungarian Academy of Sciences (DSc)

Head of topic
DR. SÁNDOR KALMÁR
University Professor (CSc)

INVESTIGATIONS ON FINANCIAL MANAGEMENT IN THE POULTRY PRODUCTION

Author
ANDREA KESZI

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1. INTRODUCTION, AIMS OF STUDY

Considering the economic development in the 20th century it could be stated that the money plays more and more significant role. The improvement of the productive forces facilitates an unlimited increase of the production technically and the processes are terminated due to financial reasons (e.g. likvidity, profitability).

It is well-known that the agriculture is one of the sectors with a high fund demand (BURGERNÉ, 1969). This fund-demand is similar to that is observable in the extractive industries or infrastructural branches (e.g. traffic). The rate of the return is moderate which results a lower efficiency than the processing industry with a lower fund demand or several modern services (BURGERNÉ, 2002).The further characteristics of this sector is that the production is influenced by slowly changeable biological barriers (like breeding and production parameters, yields). This results that the role of money extends in the economical development, moreover it gets hegemony in several cases.

However, it should take notice of the fact that the agriculture keeps its strategic nature also in the future, since one of the biggest problems in the world is the high number (approx. 800 million) of the starving people, It generates a reckon with characteristic of the agriculture (special banks, credits, warranties and interests, etc.) in the developed countries, but it is not typical for Hungary.

The advantage of the poultry breeding originates in the relatively short production cycle and from the good predictability compared to the other branches in the animal production. This statement is especially valid for the broiler production therefore the aim of the thesis was the investigation of the financial management of the poultry, especially the broiler production. This branch is primly suitable to examine and model the cash flows (in and out).

The objective of the dissertation was to examine the factors influencing the money economic of poultry production. For realizing the aims the following challenges seemed to be consequent:

1. review the development and characteristics of the money
2. examine the divisions and speciality of the money economics
3. expose the relationship of the poultry production and the money economics
4. analyse the role of expenses in the money economics
5. analyse the role of incomes in the money economics
6. analyse the role of the paymant dead-lines in the money economics
7. analyse the role of bank and monetary operations in the money economics
8. model the determinant factors

The poultry term covers more species. In Hungary it means mainly the different types of galline, turkey, and also goose and ducks, but all continent has its own speciality (like ostrich in Africa, emu in South-America, and the duck in Asia). The poultry production as it is discoverable in the title means the production of all these species, but it exceeds the limitations and possibilities of a PhD dissertation to examine all of them. Since in Hungary the poultry production is covered mainly by the production of galline, the investigations were confined to this group and the conclusions are affirmable directly to this branch. In case of other, species, of course the live weight categories, the length of fattening period, the weight gain are different, but these factors influence only the characteristics of the different species and not the basic relations.

2. MATERIAL AND METHOD

Following the collection and analysis of the primery and secondary data based on the results of the analysis, a simulation model was developed to test the most typical variations in the financial management of the broiler production.

Secondary data collection

The factors influencing the efficiency of broiler production, the main expenses and income data were collected and analysed. Also the main efficiency parameters affecting the production were investigated compared to data originated from a questionnaire survey. The required data was arised from the databases of KSH, AKI (AKII), and BTT. The collection of international data was carried out using foreign statistical databases like FAO, EUROSTAT, USDA.

Primariy data collection

The remaining data for the development of the simulation model was collected in a questionary survey.

The main aspects of compiling the adressbook were that the number of returning forms should approach 50 and the composition reflects to the regional tendences and also the ratio between the private farms and companies. The other aspect of the investigation was that the sample should correspond to the average distribution according to the individual farm sizes in Hungary. The sample farms were selected from the list of the Poultry Product Board, but other farms nominated by processing and hatchery companies were also included. The number of the returning inquiery forms was 48 and the sampled farms produced totally 2.7 million broilers in 2003.

The questions of the survey could be divided into four groups. The first group contains the general questions about the farm (range of activity, farm size,

time in production, number of employees). The second part deals with the characteristics of the broiler verticum (disposable land, feed production capacity, processing capacity, membership in integration). In the third (financial) part the questions about the type and volumen of former and further investments, payment terms were grouped. Finally the fourth group denoted the parameters of the production efficiency. After encoding of the returning data the analysis was carried out with the SPSS 9.0 statistical softwer.

Simulation model

Following the evaluation of the questionnaire forms and defining the values of the parameters (most frequent payment terms, average length of rotation and fattening periods and membership in integration) and also the realationship between them, a simulation model was developed. Three types of fattening period (39, 42 and 47 days) was tested using the same 63 days long rotation period. The length of the service period was calculated based on the length of fattening period. In the fourth case, the influence of a short 10 days long service period following 39 days of fattening was tested on the payment terms.

According to the payment terms the most frequent payment cycles found in the questionary survey (30 and 60 days) were used. In the model the variations of the different payment terms and fattening periods were tested. The model was developed in Microsoft Excel softwer.

Statistical analysis

- The expenses and incomes were analysed with use of simple statistical methods (dynamic indices on constant and altering basis, distribution ratios, means and variation coefficients)
- The relationship between the farm size and the payment terms was estimated with Pearson correlation
- The analysis of variance (Oneway ANOVA) procedure was used to test effects of inflation and the farm size on the payment terms. Treatment means were compared using alpha of 0.05 for significance in LSD test

3. RESULTS

The financial management of different companies and concerns is admitted to be a complex conception. The poultry and especially the broiler production was selected advisedly as an object for this dissertation since owing to the biological capabilities of the broiler chicken several (generally 5-6) turns could be served in a year which results a relatively – also reckon with the speciality of the agricultural prodution – high turnover rate. Another feature of broiler production is that the income emerges only once in a cycle because of the periodicity, however the costs occur few days before the beginning of the turn and show a continously increasing ratio till the production finishes.

3.1. THE STRUCTURE OF EXPENSES AND INCOMES

The economy of the broiler production evolves as a consequence of several (inner and outer) factors. Some of these factors are independent from the producer, there are no or less possibilities to change them but the remains are acessible. Nowdays the formation of the expenses depends on mainly the producers, since the prises are elaborated by the processing industry. For this reason it is practical to review first the expenditures.

The feed cost makes the highest proportion (60-65%) in the expenses of broiler production, which changed in a wide range in the last five years. The increase originates mainly from the prise increments but also significant (10-15000 Ft/t) prise decreases occured. Since, bought feed is typical for the broiler production it can be stated that feeding costs the main role in the financial management of the branch.

The second most important expense comes from the acquisition of the **chickling** (30-40 Ft/kg). In the experimental period, significant shifts were found in the cost structure, the prise of the stock had an increasing ratio in the total costs of both producer groups. Since self expended hatching is not typical,

the supply of chicklings is expected to have a significant role in the financial management (volume and time of the incomes and outgoings).

Based on the analysis of first-costs on the one hand, the ratio of **direct costs** increased enjoyably, but on the other hand the absolute increase of this item is disadvantageous. From the aspect of international competitiveness, it means serious disprofit. Furthermore, 80-90 % of the producers have relatively balanced cost structure with an average volume.The remaining 10-20% working under suboptimal conditions is not competitive, and will belong to the losing side in the future.

The price of the poultry meat strongly fluctuates in the dependence of the supply and demand. Nevertheless, the change of the prices is also influenced by the international trends and the changes in the price of pork. The development of the prices of broiler chicken is periodical; increasing and decreasing periods of one and a half year alternate consecutively.The decrease in market price materialize fastly since the increase is followed by the purchasing prices in a lover rate. However, the purchasing prices are influenced mainly by the consumer prices.

Subventions and other incomes give 3.6-5.5 % of the total income therefore they do not play determinant role, nowdays. Following the accession to the EU these subventions stopped, thereby their influence is zero to the incomes. This means that subventions have no significance in the financial management.

However, the income of the sector fluctuated greatly in the studied period (1999- 2003), excepting 2003 (and 1999 in private farms) positive return was produced. While both management types produced deficit in 2003. In the money economics profit manifests as part of the income together with costs. In the production process the profit has no significance – from financial view - since every forint of the profit compensates one forint of cost. It has a determining role in the continuation of the production, in the expansion or reduction.

3.2. OTHER FACTORS INFLUENCING THE PRODUCTION AND FINANCIAL MANAGEMENT

Basically, the inputs, costs, yields and the turnover value, income determine the economy of broiler production and thereby the cash flow. On other hand it is worthy of note that the quantity of these values is influenced by several factors that are not valuable in l.s.d but correlate with each other. The final outcome is always resulted by an interaction of more factors which have to be taken into consideration. These main factors are the following: growth rate, weightgain, feed conversion rate, survival and the length of the fattening period. These factors were analysed separately in the investigations. Therewith several influencing factors could be mentioned (genotype, stabling efficiency, proficiency) evolving the outgoings. Unfortunatelly the limited content and also the aim of the dissertation do not allow to investigate them separatelly.

The intensity of **growth rate** of the poultry species is not consistent during the fattening period, it is the most intensive in the first two weeks and in the final two weeks it decreases compared to the intermedier phase. Actually, this caracteristic of the growth rate supports the production to correspond to the requirements of the modern money- economy (rapid turnover, high currency, well calculable time points and terms). From biological aspect the turnover of the broiler fattening is shorter (40-42 days) than in the financial management, since it follows the phisical manifestation 8-30 days later.

The **feed conversion efficiency** is a basic coefficient in the measurement of the broiler performance. In Hungary, in average, 1.97 kg consumed feed produce one kilogram weight gain. In the questioner survey similar values were found: in 2003 on the majority (18.6%) the average FCR was 2.0 kg/kg.

Beside the FCR and weight gain the most influencing factor on the efficiency of broiler production is **survival**. The losses produce directly yield decrease; on other hand the lost animal also needs feed, energy and labour input

before the die off, in one word it produce significant cost during the production. Based on the data of Poultry Product Board (2003), the losses ranged around 4.5-4.8%, however in the questioner survey, an average of 3.5-4.5 % was found with 2% and 10% extreme values.

The lentght of the fattening period influenced strongly by the genotype and also other factors is 42-43 das. In practice the differences compared to the avrage lenght should be 8-10 days (minimum 37 and maximum 46 days), but it is not attended by the incomes because of the slow financial cycle (payment term of 30-60 days). From this aspect the fattening period does not affect the cashflow of the broiler production.

Beyond the fattening period **the lenght of service period** is also important, whereas these two parameters determine the number of the rotations per a year. The literature specifies it in 7-14 days but in practice it is adjusted to the 60-63 days of rotation time. That is the reason for the average 21 days long service period in Hungary based on the data of the Poultry Product Board. The effect of this period on the money economics is only theoretical; its practical role is irrelevant.

The market body weight as a general principle is a question of the biological capacity and economical decision but actually it is determined by the market-consumer demands and these demands operate due to the processing industry.

3.3. FACTORS INFLUENCING THE FINANCIAL MANAGEMENT

The financial management of the enterprises is determined primarily by the frequency of the acquisitions and realizations and the way of the payment. Financial terms are pivotal in the maintenance of the cashflow balance; they have a greater impact than the production has. It is typical especially for the agricultural production where expenses occur without outputs and inversely.

The cashflow of the enterprises is two-directional, chronologically, firstly the outflow eventuates estabilishes the conditions of the production, and the creation of the end-product is followed by the realization resulting cash inflow.

3.3.1. Delivery terms

The support of the production conditions (building of stabling, supply of chickling, feed, and medicine) prelude the production; but the payment of energy, water, and wage occurs periodically during the production. These items immobilize a large amount of capital, requiring the advance of that. In the case of time limited payment the farm expend the supporter's money till the deadline, thereby partially the deliverer finance the production. From the aspect of payment, it is important for the producer to know when and how much money and capital they need to reserve for the cost of production.

The chickling supply is performed by hatcheries on a market-supply evolved price that varies marginally between the hatcheries. Based on the questioner survey, in general, the Hungarian broiler producers have a 20-60 days long period for complete payment, but the most frequent terms are 30 and 60 days. That is the reason why the hatcheries or suppliers finance the production untill aproximatelly the middle of the turn, or occassionally till the end of the turn.

The statistical analysis of the questioner survey data revealed that the farm size has no significant effect on the financial term of chickling supply. This results in that the financial term is elaborated due to an agreement between the hatchery and the producer, or what is more presumptive the time limit beneficial to the hatchery will predominate.

The most important cost item in the financial management of broiler production or in general the animal production is **the feed cost** that influences massively the financial balance of the company due to its ratio and occurence frequency. This frequency and the supplier choice depend on several factors.

The frequency is effected by the stock size, the storage tank capacity, which results in a range from 2-3 to 14-15 days of storaging in practice (personal data collection).

The inquiery revealed that **the feed compensation terms** eventuate in a wide range from the prompt for cash to 90 days, but most of the feed producers favour the 60 day payment cycle. The payment for prompt cash is infrequent, mainly occurs if small amount of feed is marketed. In practice it means that in Hungary the feed producers finance almost the total amount of cost in the fattening period, in one word the producers benefit from the feed suppliers' money.

During the production the expenses of **medicine and vaccine** also increase the total cost but they have less significance than the former two factors. The supply of this item could be effectuated variously. Most of the farms pay it due to bank transfer, but aproximatelly 25 % of the farmers prefer cash. Based on the inquiry forms, between the medicament payment term and the farm size a significant correlation was found, namely the farm size affects the medicine payment term. As the farm size increases the farmer could manage a longer term since the small farms have to pay prompt for cash or within a short period. The farms belonging to an integration pay for the medicin in average of 16 days, while this term for individual producers takes for 30 days. This Hungarian practice is contrary to the international trends, where one of the advantages of the integration is that the producers are financially supported by the integrators.

3.3.2. Customer's terms

Another factor group of the cash flow is related to the realization of an exchange value - payed for the marketed product - on the producer's bank accout, id est the achievment of the customers obligations. The time limit for the processing industry determines the length of lay up period to ensure the producer arranging the costs and being able to start the next production phase.

The processor's term shows a high variety, in practice there are precedents from the promt payment to 180 day of time limit but from the aspect of the analysis the terms of 30, 45 and 60 days are important. The prompt payment is uncommon in practice, presumably it occurs if small amount is marketed for small processor factories, but 30-60 days are justified in practice. The processing industry prefer the long payment terms since the producer provides the commodity and the payment eventuate only after the marketing the product.

3.4. THE ROLE OF FINANCIAL INSTITUTIONS

It is characteristic for the currency of the developed countries that it is transacted due to a kind of (bank, co-operative, or consortium, etc.).The direct cash payment is rare, the bank transfer is more typical. The physical manifestation of the bank transfer needs only 1-2 days. However, the banks make a charge (interest) for it, therefore it is not essential to know how much surplus the brokers need.

The interest and bank expenses are important for the farmers because of two reasons. Deposits should be composed from the temporal residues, which bear interest at a lower rate than the basic interest. In case of shortage of money the farmers open a credit resulting a tax payment committment. The total credit expenses consist of more items and should be two or three times larger than the interests. It makes the farmers produce without credits if posible, or minimize the credit demands in their currency. The simplest way is to make the partners finance the production.

The bank operations (deposits, credits) have an apparent effect on the cashflow. The low interests are neutral or make the cashflow slow down while high rates accelerate it. The payment terms vary corresponding to the market supply and demand.

3.5. MODELLING THE PAYMENT TERMS

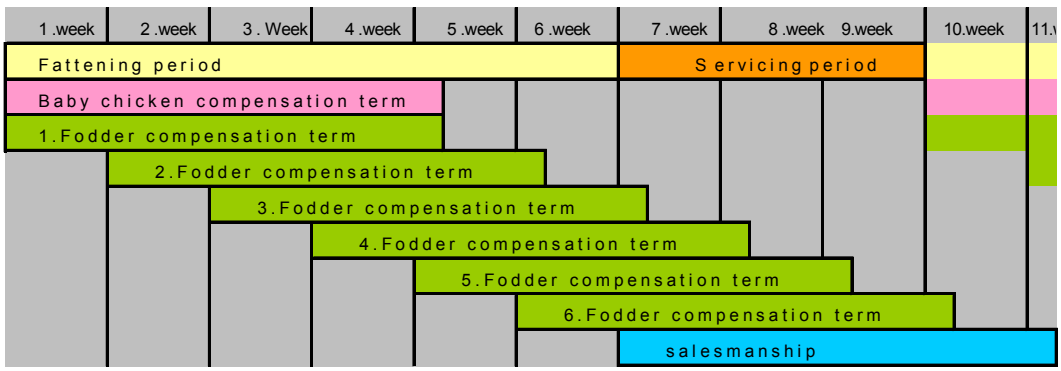
The payment terms vary within a wide range depending on the market supply and demand or bargain positions, therefore the most frequent and also the extreme, but exact variations were analysed and modelled to deduce for the main parameters of the financial management of the farms.

The model contained the two most important cost item of the production (the terms for chicking and feed supply) and also the marketing terms were involved. In case of feed supply, the analysis was carried out on the basis of weekly acquisition and bank transfer, for the good perspicuity.

The following payment variations were analysed:

3.5.1. Short payment terms

In the first model the short, 30 days long delivery and customer's terms are shown (Figure 1).



Source: own data

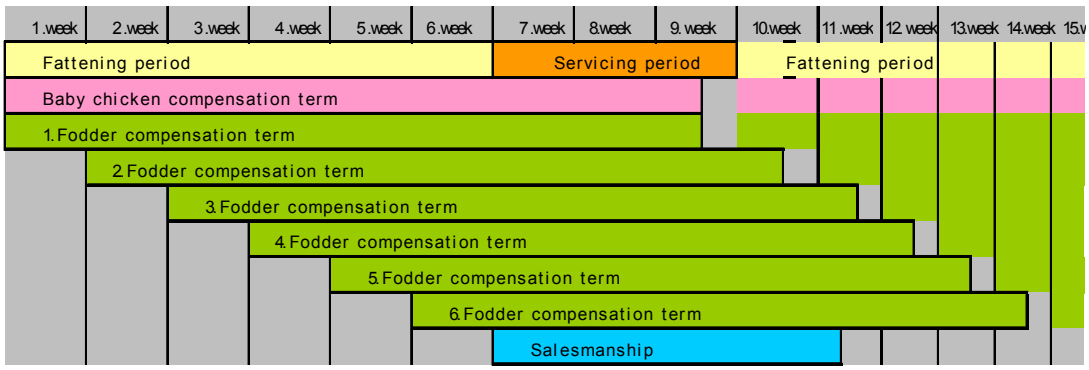
Figure 1.
Presentation of the 30 day terms during the 42 days of fattening period.

The figure shows well that according to the 30days term, the due date of the first payment manifests on the 5th week of the production, but the last one, which could be the largest item already have to be payed at the beginning of the

next cycle, which antedate the proceeds with a week. If the term manifests before 30 days, the producers should obtain the product exchange-value at the same time or before the commodities utilized during the production would be totally payed.

3.5.2. Long deliverer payment terms

The duedates of the combination of 60 days deliverer and 30 days customers' terms are shown in Figure 2.



Source: own data

Figure 2
Presentation of the 60 day deliverer terms during the 42 days of fattening period.

It can be seen on the figure that the payment after a 60 days term give the producer a chance for an uncommon financial management, which is definitely beneficial for the farmer. In this case, the due date of the chickling and the first feed supply, occurs three days before the end of the cycle, since the incomes manifests on the 7th day of the next turn. This results in that the producer have to finance only the chickling and the feed supply in the first two weeks of the production, the other costs should be compensated by the incomes of the studied turn. In this extreme financial situation the deliverers finance the producer longer than the return rate of the product. This special combination could

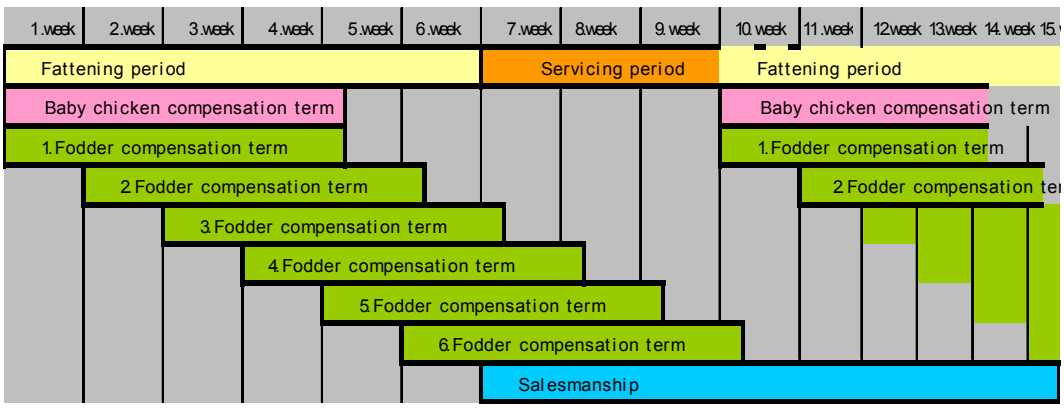
originate from the high turnover and short fattening period in the broiler production.

3.5.3. Long payment terms

The long payment terms show similarity to the 30 days terms, the only difference is that the due date manifests in the fattening peiod of the next turn so the terms and the orders almost overlap. If the rotation time change for 60 days the duedate of the first turn should coincide with the feed supply term in the next turn. In this case the producer finances the processing industy continuously for several turns, since when the farmer gets the price of the broilers the processor receives the products of the next turn.

3.5.4. Long customers' payment terms

The combination of short deliverer and long customers' terms (Figure 3) could be expressed to be the most disadvantegous for the producer compared to the other combinations.



Source: own data

Figure 3.
Presentation of the short deliverer and long customers' terms during the 42 days of fattening period.

As the figure shows, this variation is the less beneficial for the producer, especially for the young enterprises, if the short deliverer terms are accompained

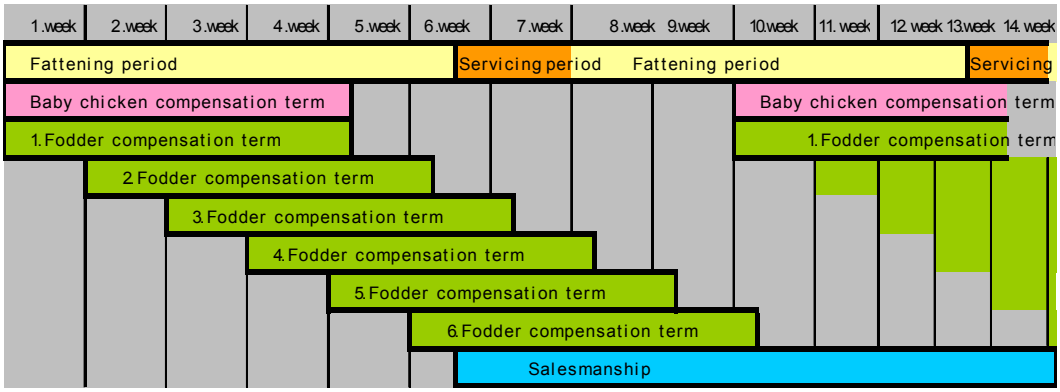
with long customers' terms. In this case, the producer receives the income when all the costs have been already compensated, moreover the stock and the feed supply of the first two weeks of the next turn have been already payed also.

3.5.5. The variation of the terms in a short service period

The simulation model provides an opportunity to study and analyse uncommon, theoretical hypotheses beside the practical ones. Accordingly, in the next figure, the combination of the short fattening period (39 day) and short service period (10 day) is shown, and their effect on the currency of the expedience.

In case of short terms, the result is simmilar to that was found in the model with longer service period, since the producer's income manifests in the beginning of the next turn, some days after all the costs are compensated.

The combination of short deliverer and the long customers' terms have an unbeneficial result for the producer, namely its money returns after the finishing of the next turn i.e. in the start of the third turn.



Source: own data

Figure 4
Model with short deliverer and long customers' terms in a relatively short rotation period

The results shown in Figure 4 do not represent that the producer do not receive money before the start of the third turn (excepting the initiative expedience), but it means that the producer has started the third turn when the money invested to the first one returns. From the view of due dates it is not more disadvatageous than the previous variations, since the producer needs to finance only the actual turn totally and the next turn partially (stock and feed for two weks). It is important only for the presentation, because in this case the turnover rate of the final product is higher than the money turover rate.

5.8.2. The relationship betwen the total costs and the payment terms

The interaction of the main cost-items and payment terms materialize in the cashflow of the broiler fattening. The model contains the typical values of a fatstock (Table 1).

Table 1

Development of the forintdays during 42 days of fattening (related to one chicken)

Nomination	Costs		Number of financial days (B)	Days to the end of the fattening period (C)	Days from the end of the fattening period to the payment dead-line (D)	Payed Ftday (A*C = E)		Ftdays remain-ings (A*D= F)	Total Ftday (E +F =G)
	Ft (A)	%				Ft-day	%		
Fix cost of production	71	18	42	42	-	2982	32	0	2982
Price of chicking	69	18	30	30	-	2070	22	0	2070
Feed for 1.week	7	7	30	30	-	210	46	0	210
Feed for 2.week	20		30	30	-	600		0	600
Feed for 3.week	36	57	30	28	2	1008		72	1080
Feed for 4.week	50		30	21	9	1050		450	1500
Feed for 5.week	64		30	14	16	896		1024	1920
Feed for 6.week	73		30	7	23	511		1679	2190
Total	390	100				9327	100	3225	12.552

Source: own data

Based on the data shown in the above table, the production of a broiler needs 390 Ft cost and 12552 Ftday cash. 74 percent of the forintdays (9324) arises till the end of the fattening (42 day), as the remaining follows the marketing.

In case of the costs payed before the end of fattening, the situation is converse. The producer has to compensate the most of the fixed costs before the end of the production, the cost of the stock and the feed supply for the first two weeks. In this case, it is 167 Ft, id est 43 % of the total costs, as the payment of the remaining 223 Ft (57%) extends to the period after the marketing. This means that nowdays the hatcheries and the food industry finance the producton largely.

However, this position beneficial for the producers is counteracted by the processing industry, because they also delay the payments therefore the producer has to reserve 57% or they have to compensate it from the income of the next turn by continous production.

The interaction of the costs and payment terms is well demonstrated by the changes in the individual cost ratios. For example the ratio of the fixed costs (amortization, energy, labour cost, other material, etc.) (71 Ft) is only 18% of the costs but their role is higher (32%, 2982 Ft) in the cashflow because of the long standby. The ratio-changes are the most prominent by the boughten feed supply, where the cost increases continuously (from 7 Ft to 73 Ft), but the forintdays follow it only untill the fourth week, afterwards it decreases.

4. NEW SCIENTIFIC RESULTS

1. During the broiler fattening, the genetical and producing results provide shorter payment terms, and faster currency. The 40- 42 days of average fattening period is followed by a 30-60 or moreover 90 days of payment terms. This results in that the speed of cashflow depends less on the genetics rather on the cashflow and demand of the market.
2. In Hungay nowdays 57 % of the total costs is financed by the deliverers (hatcheries, feed suppliers, medicine suppliers) in practice during the production. This represents an univocal benefit for the producers.
3. Unfortunatelly, the economic benefit originating from the deliverers disappears because of the delayed compensation of the processors. In the Hungarian practice, the processing industry is in 10 % financed directly by the producers, but indirectly the feed suppliers are also involved in the financing of the processors in a ratio of 37 %.

5. RECOMMENDATIVES

The modern money in its form totally differs but in content it is simmilar to the original money. Itself, the money is only suitable for the quantification (yield and outgoings) its value is determined by the change value of the products behind it. Accordingly, the value of the different currencies (forint, euro, and dollar) depends on the quality and quantity of the products. Understandingly the price of the wheat, maize and energy is determinant in transactions of the stock exchange.

The feeding costs – the largest cost-item – could be well differentiated by the individual areas and years, but it concerns only the produced feeds, in case of the boughten feed it does not occure.

The subventions and other incomes are not important according to the incomes of the branch, and it is not practical to calculate with them, in the future.

In the broiler fattening the biological turnover is faster than the economic, therefore the speed of cashflow shoul be determined only for the aspect of the market conditions.

The aim of the producers is not or only partially is the shortening of the fattening period with 1-2 days, mainly they want to elaborate the payment terms.

Beside the ratio of the costs and incomes determining the cashflow the timefactor has a greater role in the financial management. The role of the timefactor changes paralel to the changes of the bank interests, a negative correlation exists between them.

The integration in the broiler production should be advantageous for the producer not only because of the coordination and guarantee of the marketing, but it could take over the function of a bank, helping the producers with higher rate of interest for the deposits and also with cheaper credits (8-10%).

Nowdays, the Hungarian market is a supplier market; thereby the processing industry is not interested in maintaining the producers, i.e. integrate them. The integration is beneficial only for the food and medicine suppliers but this group is not able for it because of their ratio, and financial status. Real changes can be expected from the increase of the demand market.

6. SCIENTIFIC PAPERS AND LECTURES ON THE SUBJECT OF THE DISSERTATION

BOOK, BOOK DIVISION (1):

- **KESZI A.:** A baromfihús-vertikum jövője az EU-csatlakozás kihívásai nyomán, Az alkalmazkodás tényezői és teendői a vágócsirke-vertikumban, Versenyképesség a mezőgazdaságban. In: EU-Tanulmányok V. kötet Szerk.: Inotai A., Nemzeti Fejlesztési Hivatal, pp. 288-306.

PAPERS PUBLISHED IN SCIENTIFIC JOURNALS IN FOREIGN LANGUAGE(1):

- **A. KESZI**, - A. CSORBAI, - P. JANKOVICS, - K. TÓTH, I. MARTON: Financial problems in the hungarian broiler sector, 10th International Symposium „Animal Science Days", Pécs, October 16-18, 2002. szeptember 18. Acta Agraria Kaposvariensis, pp. 219-224.

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- **KESZI A**. – CSORBAI A. – KALMÁR S. – JANKOVICS P. (2003.): Gondolatok a baromfihús-előállítás tendenciáiról, Acta Scientiarum Socialium, Universitas Kaposvariensis, XIV/2003. 31-36.p.

FULL PAPERS IN PROCEEDINGS PUBLISHED IN FOREIGN LANGUAGE (2):

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