

I. Agromanagement

Agro Management

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Abstract

The Macedonian agricultural production is characterized with in an agricultural structure comprised of: agricultural organizations (agricultural enterprises and agricultural cooperatives), and individual agricultural holdings. The agribusiness enterprises, which function in the primary agricultural production, are a separate part of the agricultural structure.

Agricultural enterprises are large organizational forms that function in the legal framework of the Law for trade companies. The largest number of them comes from the previous social agricultural combines and economies. Today they have either passed or still endure the process of transformation and privatization of capital.

The situation of agricultural cooperatives is very difficult. In fact, they do not exist and in the previous system their work resembled more the work of agricultural enterprises.

Individual agricultural holdings own over 44% of the total agricultural land, or more than 74% of arable land. But their area is very small (1.29 ha arable land, with great fragmentation of land).

In the last ten years the agribusiness enterprises work as logistic support of economies in primary agricultural production. Their work can be described as activity “to the farm’s door” and “from the farm’s door”. Their activities are in: finishing and manufacturing agricultural products, trade with Agricultural and food products, trade with raw materials and fixed assets for agriculture.

All informational systems in the agriculture of the Republic of Macedonia are poorly developed at present time. Their further growth is specifically important for development of agriculture, especially for individual agricultural holdings. Also, the development of FADN would entice development of management in those agricultural subjects.

Since 1972, The National Extension Agency exists in the Republic of Macedonia. As the rest of institutions, this agency is also in process of transformation, but her role in development of individual agricultural holdings has always been of importance.

The purpose of this entire paper is to represent the present condition of agro management in the Republic of Macedonia, in order to adapt the complete scope of agro management to the new conditions, which will be created with the membership, in the period before the Republic becomes a member of the EU.

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Background and Aim

The basic aim of the agro management research of R. Macedonia is to study the state of agricultural sector (agricultural enterprises, agricultural cooperatives and individual holdings) and possibilities for its better adjusting, because when Macedonia enters the EU the economic conditions will be significantly changed. Namely, different competitive subjects will appear at Macedonian market and the wholesales and retail prices will decrease, whereas the production will be less profitable.

In order to increase production profitability, the farmers will need information for the purchase and sales market. The high-quality information to the agricultural subjects will provide possibilities for new agribusiness through which Macedonia will enter EU in this sector more relaxed.

Method

In order to study the state of the agricultural sector, an official statistical data from the State Statistics Office, data from the Agency for Privatization of the Public Property in R. Macedonia, Chamber of Economics of the R. Macedonia and data from the interview of more than 100 individual producers as well as 5 agribusiness enterprises is used. The possibilities to increase the profitability are studied by SWOT analysis taking into consideration three the most important characteristics of the required parameters of the analysis.

Agricultural Organizations

In our country in accordance with the character of the ownership and the way of managing the production means in the agriculture, there are three institutional forms – agricultural enterprises, agricultural cooperatives and agricultural holdings.

Agricultural Enterprises

Importance

Their main purposes of the typical agricultural enterprises are the following:

- production of food for the population,
- products for food processing industry;
- production for export, which will provide funds for primary development, modernization and reproduction.

The agriculture has an important and stable participation in the Macedonian economy. It holds the second greatest contribution in creation of GDP after the industry. Recently since 1994, it has contributed with 11%. However, if we take into consideration the contribution of food processing and tobacco industry, which amounts 5.4%, the agricomplex in R. Macedonia receives more significant economic importance for the stability of the state financial funds.

The importance and the role of the agriculture in the economy can't be analyzed in accordance with the contribution with the GDP only, since it becomes a part of the industry, has great contribution to those funds.

In the period between 1994 and 2000 according to the changes of the GDP rates, the agriculture shows a negative trend with an average growth rate of 0.3%.

Current Situation

The assets used in the agricultural enterprises and holdings are the capital funds. They are created in a longer period and they can be used to plan the future dynamic and continuous structural development of the Republic of Macedonia.

The current status of the fixed assets in the agricultural enterprises in the Republic of Macedonia is continuation from the time they were formed in the Former SFRY. The development strategy was directed through development of agrocombinates, large agricultural economies and partially through the agricultural cooperatives as legal subjects. After the independence of the R. Macedonia and the occurrence of the crisis, these legal subjects started to lose their dominant role at the agricultural market. The main difficulties were a result of decreasing of the agricultural land use, employment reduction, migration of the skilled employees, lack of favourable loan funds *etc.*

It is necessary to review the agricultural land use within agricultural enterprises and holdings in the period 1990 – 2000, respectively (Table A- 1 in Appendix A).

Agricultural Land Use

The agricultural land use from agricultural enterprises is decreasing, particularly in the vineyards and orchards. The total agricultural land is used about 12% lately by the agricultural enterprises, the cultivated land above 21% (where the ploughed fields is about 90%, orchards 2%, vineyards above 7% and meadows approx. 2%). It can be concluded that the land use as decreased for about 2% for ploughed fields and gardens. The largest decrease is noticed for orchards, above 40% and vineyards, about 24%. This state is a result of bad economic conditions. The agricultural enterprises decrease the land use, in accordance with the Agricultural Land Use Law, and they were obligated to transfer 15% from the land, which was assigned to the individual producers (Table A- 1 in Appendix A).

Employment

After 1996, a trend of significant decrease of the number of employees in the agricultural enterprises is noticeable, especially after 2001 with 43%. The number of employees on 1993 was 27 000, and decreased to 11 500 in 2001. The worrying

fact is that about 50% of the experts in the field are leaving the country. The problem is located in the decreased agricultural production and because of the lack of consistent agrarian and development policy in the R. Macedonia, low, irregular and insecure payments.

Production and Efficiency

The agricultural production index is on the same level from 1993 to 2001. This is result of the decreasing the number of agricultural enterprises which started in 1997 and continued until 2001 where the decreasing index amounted 90 index points (2001/1993 year) or 44.0%. It is important to notice the increased production in agribusiness firms for about equipment of the labour is maintained on the same level, because the supply of tractors 33% or 70 index points. In this period, the technical and additional mechanization was modestly increased. However, a decrease of the norm-cattle¹ is noticed within agricultural enterprises (60%) and agribusiness firms (16%) respectively (Table A- 2 in Appendix A).

As a result of the difficulties on our country, the agricultural enterprises show more and more negative rates in the real value of the agricultural production (Table 1).

Table 1. *Mean rates of the real value of the agricultural products in the period 1990 – 2000, per cent*

Activity	Total	Agricultural Enterprise	Individual Agricultural Holdings
Total	1.29	-5.71	3.57
Field crops production	5.00	-0.29	6.00
Fruit production	-3.00	-16.29	0.86
Viticulture	10.29	7.17	14.43
Livestock production	-1.43	-8.71	1.71

Source: Statistical Yearbook -311/2001.

In the last 7 - 10 years the low rate of 1.3% of the growth of the value of the agricultural production in Republic of Macedonia is caused by the large negative rate from -5.7% realized in agricultural enterprises. It is a result of the enormous drop of the rate in fruit production (-16.3%) and livestock production (-8.7%). The individual agricultural producers showed higher flexibility at the market and significantly higher growth (3.57) Table 1.

Marketing – Consumption

The agricultural market is unstable in space, time and structure. The deficit of certain, mostly strategic products is a common phenomenon from one side, and market surplus on the other side. The consequences are connected with the organization of trade, particularly with the disharmony of the buy-out in the chain

¹ Norm-cattle = live weight of 500 kg.

trade, large number of middlemen and dealers and bad market preparation (sorting, calibration, packing, labelling, arranging *etc.*).

A distinctive marketing problem is the Balance of payments in R. Macedonia, which in fact is negative. In the past middle term period of development, the agriculture export is estimated at 1.5 – 2.8% whereas the import at 1 – 5% of the total export-import value. The total deficit in the country is estimated at \$600 million, whereas the agriculture contributes with \$30 million. The import is covered with 65% of the export, which is 40% in agriculture. The highest import rates are referring to the import of meat products (27.8%), crops and its processed products (21.2%) *etc.*

Ownership

Within the overall social and economic changes, a base for further development of the economy is provided by privatization of the public property (Official Gazette of Republic of Macedonia. No. 19/96).

According to the date of the Agency for Privatization – Skopje (a governmental body) the total number of the agricultural enterprises is 355. With the transformation process this number is increased to 443. Until 31 December 2002 there are 393 privatized agricultural enterprises. The status “privatized” (by the decision of the Government) is referred to those legal subject which posses at least 51% private capital, or with whom the Agency for Privatization – Skopje made a contract for privatization/sale of the shares. According to the Agency for Privatization the privatization process is still not finished and there are about 16 legal subjects being processed and will have to be solved by the end of the year.

In the total value of the registered agricultural enterprises, estimated at €201.0 mil., the nominated capital (stock shares) is 18.21%; social-owned for sale is 42.65%, pension fund 7.53% and total fixed investments 31.51%. The smaller enterprises were privatized according to the model of buying out the enterprise from the employees, whereas the larger agricultural enterprises according to the model of the managerial buy out (52%), by transformation of the loans into permanent investment and by ransom of employees and the enterprise (22%).

Efficiency

Some indicators for the successful performance (profitability) of the agricultural enterprises in comparison with the individual agricultural holdings (according to the prices from 1972) are as follows. According to realized domestic product, the agricultural enterprises show higher productivity in labour, in comparison with the individual agricultural economy and they have maintained that level, mainly as a result of reducing the number of employees in 1998. The ratio of realized domestic product on 1 000 ha tilled soil in 1990 was of similar intensity for both types of economy (around 5%), unlike in 1998 when individual agricultural holdings marked an increase and agricultural firms marked decrease.

GDP viewed in 2000/1994 through the total index of economy in the Republic is increasing and amounts 144, while in the agriculture amounts over 155. The

average participation of agriculture in the total value of GDP in the Republic, in the period from 1994 to 2000, amounts 10.5% (Table 2).

Table 2. *Participation of realized investments in agriculture in creation of GDP and participation of realized investments in the development in the period from 1994 to 2000*

	Total economy	Agriculture	Participation
GDP	1 335 734	141 062	9.5
Realized investments	237 847	10 993	21.6
Participation of realized investments	17.8	7.8	

Although the realized investments in range of realization in the Republic are low, especially in the agriculture, they are quite modest. The level of participation of 21.6% shows that we are investing in the development of this economic area, but it should be understood that this high percent comes from the total (low) value, as a base for evaluation in the total economy.

SWOT analysis

Evaluation of the three most important strengths

- Good organization of agricultural land
- Well educated human resources
- High intensive production

The three main weaknesses

- Inadequate technical-technological and organizational-economic position of the enterprises in the conditions of market economy
- Low level of Management organization (managing and leading) and inappropriate organization and coordination of the function performance in the enterprises
- Bad organization of marketing

The three main opportunities

- Good position at the domestic market
- Opportunities for engaging the labour force for lower costs
- Possibilities of the development of the region

The three main threats

- Biological character of the production and its dependence from the natural factor
- The process of privatization in many of agricultural enterprises has not finished yet
- Bad support by the banking system

Objectives

The Republic has been in a stagnant position for a longer time and this position can be avoided, aside from overcoming many open problems, and especially with the basic directions of development towards productive restructuring. On those bases we can ensure more successful integration in the globalization of the world trade and financial flows, in order to create conditions for making the GDP more dynamic and for prosperity of the national market.

Formulating strategies

Formulation of the three most important strategies of typical agricultural enterprises

- Enforcement of competition on domestic market, which should motivate Macedonian economic subjects to enforce competitiveness through the development of new products and services, modernization of technology and reduction of costs.
- Enabling larger access to capital, equipment, knowledge and technology, application of standards, technical regulations, professional, organizational-technical, new possibilities for education, training and employment, *etc.*
- Full and improved deployment of available soil fund, water supply system, production means and labour, enabling affordable use of finances which are used in the production process (rotation – crop rotation), better organized and fuller deployment of subsidiary products in the vegetable and stock breeding production.

Formulation of the three most important government strategies for the agricultural firms

- After the completed reorganization and privatization of agricultural enterprises, their further development should be encouraged in the post-privatization period in the Republic in order to increase the market supply, for which the government should pass a system of macroeconomic measures and to establish suitable institutions.
- The state (government) should pass other measures which will also apply to individual holdings, such as: subsidies in the framework of WTO, active foreign trade protection from import of agricultural products, facilitation in import of raw materials and stimulants in export.
- The main government strategy which is expected with the “program of measures and means” and which will be passed for a longer period, will represent ensuring affordable short-term, middle-term and long-term credit placements, and this will function best if it operates through a special bank for support of the development of agriculture.

In this context it is necessary to invest into a special project for exploring the problems connected with the development of agricultural enterprises in this post-privatization period.

Individual Agricultural Holdings

Importance

The individual agricultural holdings have important significance in the agricultural sector and in the entire economy of the Republic of Macedonia, not only for their relatively large number (178,100, according to the census from 1994), but also because they are owners of 546,926 ha agricultural land or approximately 44% of the total 1,254,417 ha.

They are the main producers of bread crops – wheat with 66% of the total production. Almost the entire quantity (91.4%) of rice is produced by individual holdings. They also produce 96.2% of the total production of corn and nearly 67% of barley, which represent main concentrated animal feed. Lucerne is also produced in over 82% by individual holdings, and the forage beet and forage corn nearly 39% and 28% respectively. The hay is mainly produced by individual holdings (nearly 93%). The individual agricultural holdings are the main suppliers of raw materials for the factory of sugar production in Bitola since they produce nearly 73% of sugar beet from the total production. From the total domestic raw material nearly 33% of the sunflower seeds are produced by individual holdings. Tobacco, as labour-intensive culture (especially the oriental types of tobacco) is produced by individual holdings in over 96%. The vegetable cultures, especially peppers, tomatoes and potatoes are produced by individual holdings in over 90%. They are main (over 90 %) producers of fruit, as well, (apples, pears and apricots). These holdings also dominate (with 69%) in the production of grapes. Their participation is small (17.5%) in the total production of wine, which means that they give their total production of wine grapes to the wine cellars equipped with modern technology for wine production.

Condition

Fixed assets

The importance of fixed assets in agriculture is widely acknowledged in general sense and also in the individual agricultural holdings. This is even more important when we know that for a longer time in the Republic of Macedonia the assets mainly belong to the individual holdings. Namely, 43.6% (average for 1999 – 2001) of agricultural land belongs to individual holdings, 74.7% of arable land, 74.0% of ploughed fields, 80.5% of the orchards, 63.0% of the vineyards, 87.5% of meadows and only 13.5% of the total land is of grazing land. The small participation of the land for grazing is understandable, since in the last period the individual holdings ‘easily’ gave this category of land for utilizing to the state from socio-economic reasons (increase of agricultural pension, decrease of land tax and similar), while the state gave this land to be utilized by agricultural enterprises and cooperatives.

In the past three years (1999 – 2001) and in the past longer period the livestock fund mainly belonged to individual holdings. Thus, from the total of 293 thousands of norm-cattle², 90.4% belong to individual holdings. The situation for

² Norm-cattle = live weight of 500 kg

certain types of livestock is the following: from the total average number 266 794, the number of cattle and buffaloes 95.5% belong to individual holdings, 62.3% of pigs and 92.2% of the total physical number of sheep.

From the total average (1999 – 2001) number of tractors (61 057 single hub and double hub) in the Republic of Macedonia 96.8% belong to individual holdings. The power of one physical tractor on the average is 27.28 kW or 3.51 kW per hectare of arable soil.

Employees

On the basis of the census from 1994 (State Statistical Office, book 10/97) 225 728 inhabitants or 1.6% from the total 1 945 932 inhabitants in the Republic of Macedonia have declared as agricultural population. From this number, 40.5% or 91 354 represents an active population employed in the agricultural sector (individual holdings, agricultural enterprises and cooperatives). By taking out the number of employees in the agricultural enterprises and cooperatives (23 440 employees in 1994) the number of employees in individual holdings is 67 914. If we take into account the same relations, as in the census from 1994, the number of employees in individual holdings (in estimated number of total population of 2 035 000 in 2001), will be 84 095 workers, which in comparison with the previous period is bigger for 16 181 workers or 23.8%.

Production

The agricultural production in individual holdings is heterogeneous, *i.e.* relatively small number of farms are specialized as: grain (tilled land cultures), vegetables, fruit, vineyard, farms for milk production, farms for meat production, farms for rearing poultry and production of eggs and farms for mixed agricultural production. Until now, individual holdings have given various productions, which are officially registered as 6 grain cultures, 5 industrial cultures, 10 vegetable cultures as a main crop and 3 inter-crops, 7 forage cultures, 10 fruit cultures and 1 grapevine culture. In addition, the livestock production is statistically registered per cattle, buffaloes, horses, pigs, sheep and poultry. There are also cultures, which are not registered such as vegetable products and domestic animals, but are part of the assortment of production by individual holdings. For example: soybeans, sorghum, naut, peanuts, pumpkin, zucchini, okra, carrot, beetroot, parsley, oil beet for green mass, esparzeta, pomegranate, kiwi, Japanese persimmon, olives, chinchilla, duck, turkey and *etc.*

The above-mentioned cultures and domestic animals are produced and reared in small quantities and numbers, but they have a significant part in the creation of income in individual holdings, due to everyday greater consumption of the city population of the Republic of Macedonia.

The wide variety of products, among the others (a small land – 1.28 ha arable soil, divided area, *etc.* have a negative effect on the level of profitability of the production. So, for example, according to the results from the previous researches (Milanov et.al. 2001) The coefficient of profitability in the production of wheat at the chosen individual holdings on the average is 1.36 *i.e.* 26.24%, for the

sunflower it is 1.03 *i.e.* 3.02%, for the sugar beet it is 1.43 *i.e.* 29.73%, for the tobacco type prilep 1.32 *i.e.* 19.75% and for type jaka 1.16 *i.e.* 11.32%, for wine grapes 1.69 *i.e.* 38.17%, for apples 1.52 *i.e.* 31.61%, for cow's milk 1.14 *i.e.* 10.30% and for sheep's cheese 1.57 *i.e.* 32.27%.

Marketing – customers

The majority (over 35%) of the final production (especially grains and fruit) has been offered to the market in fresh condition, and a relatively small part (especially garden products) has been used for meeting personal needs of the households.

However, individual agricultural holdings appear on the market as serious participants due to the buy-out of the agricultural products, with 43.1% from the total buy-out of wheat and rye, with 13.3% of corn in grains, with 21.2% of potatoes, with 6.8% of edible apples, with 35.9% of animals for slaughtering and with 58.8% of sheep and lambs. It is a minor (with 2.7%) participation of the individual holdings into the total buy-out of meaty, half-fat and fat pigs, because they are reared primarily for personal needs *i.e.* for feeding the family.

Ownership

Considering the individual holdings, we can say that the total capital and means are their personal property. It is inconsiderable the number of those holdings where the means (some land, a machine, *etc.*) belongs to a different owner for which a rent is paid. The number of the holdings where a means (for example a tractor, equipment *etc.*) is on leasing is much lower.

Profitability

Despite the relatively big partition of the land property and the low quality of the soil, which are initiators for high costs, though the individual holdings make profit which differs from culture to culture, and (Milanov et.al., 2001): the average rate of profitability at the wheat is 26.41%, at sunflower 3.05%, at sugar beet 30.50%, at tobacco type prilep 23.27%, at the type jaka 13.14%, at wine grapes 40.39%, at apples 36.32%, at cow milk 13.36% and at sheep cheese 37.59% from the total income.

SWOT analysis

Strengths

- Quick and easy making and applying management decisions due to the lack of management hierarchy.
- Big flexibility in the choice of the assortment of the products, because the owner creates the production structure by himself.
- Achieving high level of quality in the work, because it is a family business done by the family members.

Weaknesses

- High level of divide of the land property, which causes high production costs, due to irrational usage of the working time and the machines, higher transportation costs, more material wastage *etc.*
- Not sufficient approach to the capital, due to some mortgage obligations
- Not sufficient approach to the market due to the small range and non-standardized production.

Opportunities

- Joining into agricultural associations to meet some common objectives, such as: supplying cheaper raw materials due to in bigger quantities and lower transportation costs, appearing in the market with bigger quantity of standardized series of products, negotiations with the Government about the current problems, *etc.*
- Increasing the competitiveness of the market by typology and standardization of the production according to the ISO and HACCP standards.
- To unite the means of more holdings in order to build processing facilities for finalization of the products - the raw materials.

Threats

- Further divide of the land unless appropriate measures are taken to regulate the right of inheritance.
- In case of strict specialization of the production, the whole production may be lost due to appearance of some known or unknown diseases or.
- In case of the lack of marketing conception in the production, it is possible the big quantity of agricultural products for example: onion, watermelon, pepper, table grapes or lamb meat not to be realized.

Objectives

The typical individual agricultural holdings in future should focus on:

- Increasing the land property, from the present 1.29 ha arable area, because there is nowhere in the EU (Galev et.al., 2001) a country with such a small property, for example in Greece – 4 ha, in Italy – 5.6 ha or in Slovenia 4.8 ha.
- Marketing orientation of the production comprising an assortment with a small number of products typical for that area and produced with modern techniques and technology standardized according to the ISO and HACCP standards, with competitive quality and price, mainly for European market.
- Quick acceptance of the trend for ecological agricultural production for which the Republic of Macedonia, especially the individual holdings have suitable conditions, because some of them are located in hill- mountain areas free of pollution and industry.

Formulating Strategies

The most important strategies for the typical individual holdings

- Making pressure on the Government for quick regulation of the right of inheritance considering the agricultural land (for example: priority must be given to the oldest son or to the heir who stays to live and work on the property) so the present size of the property is kept.
- To unite according to all bases into associations in order to increase, to typology and standardize the production, having mutual approach on the market.
- For increasing the competitiveness quick implementation of technology which spends fewer chemical preparations and additional energy, but which uses alternative sources of energy and natural additives: colours, aromas *etc.*

Governmental strategies for improving the future conditions for production

- Program for supporting farms for organic agriculture.
- Program for crediting young hopeful farmers.
- Program for supporting export oriented farmers.

Agribusiness Organizations

In advance of presenting the general picture for agribusiness organizations in the Republic of Macedonia, it should be taken into consideration the concept of agribusiness not confusing it with agricultural organizations. The term agribusiness considers all the activities taken in course of the agricultural production, but not the primary production of agricultural products. Shortly, agribusiness comprises all the activities, which help the agricultural production (trade and supplying the agriculture with raw materials and fixed assets), as well as all the activities done over the agricultural products after their primary production (processing, storage, selling)

Importance

The importance of the agribusiness enterprises, *i.e.* the agribusiness in the Republic of Macedonia, is getting in highlight, considering the fact that a big part of the agribusiness enterprises have appeared during the last ten years, as independent business subjects. This statement comes from the fact that till the beginning of the transformation of the public agricultural organizations, a big part of the agribusiness was in the frame of the former agricultural organizations, especially included in the agrocombinates. Therefore, in most cases they had organizational units for supplying repro materials, even for some of the fixed assets, not only for personal needs but also for the needs of the individual agricultural holdings on the operational territory. These combines also included organizational units for processing the agricultural products, which also processed products buy-out from the individual agricultural holdings. These organizational units also did some trade of the agricultural products, personal and buy-out as well. With the transformation the conditions have changed, so the agribusinesses

have separated from the primary agricultural production and the same have been organized into special business subjects, as agribusiness enterprises. It is a smaller part, where in some agricultural enterprises agribusiness parts are left, but generally today we can talk about typical agribusiness enterprises.

Current Situation

The typical agribusiness enterprises have a wide range of activities, which are: trade with repro materials and fixed assets for agriculture, trade with agricultural and food products and as the most important and at this moment as the most typical processing of the agricultural products. In appliance with the current situation, the State statistical Office of the Republic of Macedonia, points out these agribusiness enterprises in the process of following and announcing any information. So from this Office we have got the following summary about the number of agribusiness enterprises, which run the activity of processing the agricultural products (Table A- 10 in Appendix A).

It is of special importance and contribution to the agribusiness development in the last ten years, the increasing number of enterprises, which run the activity of trading with repro materials and fixed assets for the agriculture. Such enterprises are those which trade with seeds, preparations for protecting the plants and the animals (insecticides, herbicides, vet medicines), agricultural mechanization, breeding stock *etc.*

Beside the above mentioned it is important to notify the enterprises which run trade with agricultural and food products, which have appeared recently as newly-founded ones or come out from the former combines or other public organizations.

According to our information, the capital of the agribusiness enterprises is 100% nominated, *i.e.* private. All the newly founded organizations, especially in the field of trade, have private capital, which belongs to the founders of the organization. The agribusiness enterprises which came out from the former public enterprises, as attractive units were bought in the process of the privatization and have become Joint Stock Companies, where the shares belong to the managers of the company.

Agribusiness enterprises absorb considerable quantity of labour. According to the State Statistical Office in 1999 only in the food industry (production of food products, drinks and tobacco industry) about 17 500 workers were employed. If we add to this the employees of the other fields of the agribusiness, the figure increases immensely, which from this point gives the agribusiness special importance because the Republic of Macedonia faces with a high rate of unemployment (in 2001 there were about 263 196 unemployed people).

The importance of the agribusiness enterprises is obviously big for agricultural development. Well-developed agribusiness is important for the logistics of the modernization of the agriculture. Providing modern technical means, repro materials, implementing new highly productive sorts of plants and breeds of livestock, are necessary conditions for increasing the productivity and intensity of the agriculture. On the other hand developing channels for distribution of the

agricultural products by the agribusiness enterprises will contribute to decrease the market uncertainties during periods of disturbed market relationships.

The agribusiness has an important part in forming the GDP of the Republic of Macedonia. In the year 2000, the part of agribusiness representing the production of food products, drinks and tobacco, participated in GDP with 5.59%.

The agribusiness enterprises also give their contribution to the development of the marketing of the agricultural products and processing, guiding the primary agricultural producers towards marketing approach of the production and modernizing it. The agribusiness organizations confer the Macedonian agricultural products not only on the national market, but on the foreign markets, as well

SWOT-Analysis

According to our researches and the poll carried out for this purpose in five agribusiness enterprises, the following conclusions have been reached for the SWOT analysis.

The three most important strengths of the agribusiness enterprises are:

- Skills and professionalism of the human resources;
- Maintaining of sustainable quality of the products and services and product control, which provides good position on the market;
- Good organization, which provides quick flow of information and quick making of decisions.

The three most important weaknesses of the agribusiness enterprises:

- Insufficient circulating funds;
- Unsatisfactory technical equipment;
- Production with relatively high costs, which cause high prices on the domestic market.

The three most important opportunities of the agribusiness enterprises are:

- Good domestic market (which is relatively protected from foreign competition);
- Good approach on the EU market and the markets of the other countries, as a result of the signed agreements for free trade and the agreement for association and stabilization with EU;
- Relatively good communication infrastructure, which provides fast and secure transport of the products, as well as good telecommunication connections which provide fast exchange and access to information.

The three most important threats for the agribusiness enterprises are:

- The political-security instability in the country;
- The high interest rates;
- Illegal trade, which causes unfair competition.

Objectives

The future objectives of the typical agribusiness enterprises will be aimed towards their further strengthening on the domestic market, as well as the extension of the foreign markets. The ones who have already extended certain foreign markets will aim their action on the strengthening of the position on those markets. The realization of these objectives will certainly mean additional investments in the modernization of the production, especially in the marketing.

According to the mentioned poll, in the agribusiness enterprises there is a attitude that, as future objectives of these enterprises, apart from the mentioned, are the further investments in the expansion of the production assortment, investments in the development of the human resources, investments regarding the modern way of packing the products and investments in the development of the distribution network.

Formulating Strategies

The accomplishment of the fixed objectives, the agribusiness enterprises will carry out through fixed strategies. Among the number of strategies, the following three dominate:

- Reduction of the production costs, especially by reduction of costs of the capital, which will increase the competitiveness in terms of the selling prices;
- Strategy in the development of the marketing approach to focus on the domestic market and to extend and preserve the foreign markets;
- Strategy for development of a wider product assortment, which will enlarge the supply on the market, which will enable bigger flexibility of the agribusiness enterprise.

Apart from the strategies set by the agribusiness enterprises, for the development of these enterprises it would certainly be important to formulate governmental strategies for this sector. Among the others, the following three should dominate, according to our opinion, and to the opinion of the managers of the agribusiness enterprises:

- A definite conclusion of the process of privatization of all the agricultural enterprises, which in the past had state capital, as well as final privatization of the agribusiness enterprises which come from the former state economies;
- Establishment of agricultural politics that will provide support of the development of the agriculture, as well as development of institutions that follow the agricultural development;
- Management of monetary policy that will enable decreasing of the interest rates and interest support of the agriculture and the agribusiness;

Information Systems in Agriculture

Regarding the information systems in agriculture, Republic of Macedonia has still not developed them enough. The radio and television programs in the field of agriculture are traditionally present, but according to the opinion of many people,

their participation in the total time of the programs is not enough. Recently, there have appeared many written media, which increased the amount of information for the farmers. The associations of the agricultural producers also made a significant contribution.

The construction of an integral information system of the Ministry of agriculture, forestry and water economy has already started, but this same system is still limited in terms of information.

Farm Accountancy Service

In Republic of Macedonia we can freely say that there is no farm accountancy service as an organized system. Some agricultural producers tried to keep certain data about the costs and the revenues, but all of that is different so that they can not be compared and used for different needs, by the producer and wider by other institutions (associations, governmental institutions, science and *etc.*). That is why there is a need for unification farm accountancy system, which will give the individual agricultural producers an opportunity to keep their farm accountancy in a standardized and organized manner.

The importance of farm bookkeeping

The importance of the bookkeeping of the farms is firstly from the point of view of the farm management. The absence of bookkeeping records is a big limitation factor in the decision making of the farms. Also, some analyzes for the achievement of the farm are impossible unless they are supported by firm bookkeeping data.

The bookkeeping of the farm also helps to solve many everyday problems, and mainly:

- The taxes in the agricultural production
- Loans in the agricultural production
- Formation of prices of the agricultural products
- Creation of a business plan, its analysis and comparison of the achieved results
- Macroeconomic strengths of the implementation of the farm accountancy records

Being the reason and taken into consideration that one of the activities that Republic of Macedonia must implement during the joining of the EU is developed FADN, certain projects have been carried out supported by the World Bank, as pilot projects for implementation of a accountancy information system of the private agricultural holdings, monitoring of the agricultural holdings and as a current project supported by SIDA, is the project which will establish FADN in Macedonia.

Objectives and Strategies

Considering the fact that in Republic of Macedonia there is no farm accountancy system, the basic objective is creation of an accountancy system for the small-scale farms. One should keep in mind the accountancy standards on one hand and the specifications of the small-scale farms on the other.

In order to accomplish the desired objective, it is necessary the government, *i.e.* the Ministry for agriculture, forestry and water economy to create a strategy for promotion of bookkeeping records which will make the farmers accept this activity, and then a legislative regulations will be prepared to legalize the bookkeeping records on the farms.

National Extension Agency

The National Extension Agency (in the further text Agency) represents an Institution of a service model of professional approaches in the realization of the development of the individual agriculture producers. The Agency performs its professional activity in great number of producers (farmers) with various production structures, supporting the production process and its preparation for placement both by information and services. They consist of sum of applications for gaining effects of new results and solutions in the area of technical, economical and biological researches. Agriculture advisory service and the agency's approach represent a shape of organized approach in a kind of educational process, with a basic objective to provide useful information directed towards the farmers – users. The intention of this approach is to provide for the farmers corresponding materialization of their capabilities, knowledge and information, in order to increase the production and the income, by simultaneous increase of the national agriculture production and national wealth.

The Agency is a budget beneficiary and it is financed through the Ministry of Finance. The Agency, in continuity has been functioning since 1972, and has great experience in its field of functioning. Joining of 30 former centres for development of the agriculture formed it.

The Agency performs its function through more than 30 working units, grouped in six regional centres, with a common Head Quarter. Every working unit is technically and professionally equipped for normal functioning. An information system - software made in web technology functions. It is a multi user program and it consists of several sub-systems. The working units, the Head Quarter and other users communicate by Internet. The Agency has 135 employees, 100 of which are agricultural engineers - advisors, economists and other professionals. For better functioning of the activities in the sphere of agriculture, all the advisors, according to their specialty are members of six working groups: for viticulture and fruit growing, for vegetable production, for agro economy and a working group for information and marketing.

The Agency has had a significant place in the process of realization of certain development measures in the agriculture, initiated by the Ministry of Agriculture, Forestry and Water Economy, especially:

- artificial insemination of cows
- financial support for breeder female stock - lambs
- financial support for purchase of vine graft and fruit seedling;
- demonstrative experiments with crops, plant protection materials *etc.*;
- diagnostic research;
- intervention plans;
- work with associations of individual farmers;
- participation in report-diagnostic forecast;
- participation in fairs;
- making technical-economical advisory packages;
- implementation of scientific and professional achievements in agriculture on the field;
- keeping the individual agriculture producers informed;
- giving constant advisory services to the farmers;
- support in organic production *etc.*

The subsystem for monitoring of a farm has been established in the Agency and it is one of the important ones, since it is used for the purposes of improvement of the agriculture statistics. This subsystem has a task to create a database from the information by the individual agriculture producers. Most of the activities of the advisors are connected with direct presence on the field in order more quality technical-economical advice to be given for improvement of the quality and quantity of the agriculture production and general improvement of the overall development of the farm.

During the visits, the advisors among other things follow and analyze great number of information on the farm's resources, yield, income, expenses, need for certain raw material and other problems that the individual agriculture producers have. For better usage of the information, they are put into a computer, by which it is possible to make a complete processing and analysis of the farms in an electronic form.

The advisors, employed in the Agency are professional personnel (graduated engineers), who constantly upgrade their knowledge and who have great practical experience. Their communication with the farmers goes through an individual meeting and by the method of group communication when giving advice and information exchange. By that, every advisor during a visit of a village makes contacts with a large number of the population.

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Appendix A

Table A- 1. Participation of agriculture enterprises in the usage of agriculture land.
In thousand ha.

	Total area ¹		Agriculture enterprise		Struc- ture	Partici- pation	Index 2000/ 1990
	1990	2000	1990	2000			
Total agriculture enterprises	1 320	1 285	167	161	100	12.5	96
Arable land	666	647	143	137	85	21.2	96
Cultivated fields and gardens	555	546	123	121	89	22.2	98
Fruit gardens	22	18	5	3	2	16.7	60
Vineyards	35	29	13	10	7	34.5	76
Meadows	54	54	2	3	2	5.6	150
Pastureland	651	636	23	23	15	3.6	100
Ponds and reed areas	2	2	1	1	-	50.0	100

Source: Statistical Yearbook. 311/200

Table A- 2. Development of the agriculture figures.

Year	Production index			% of total buy-out and realization		
	Total	Agricultural Enterprises	Individual holdings	Agricultural Enterprises	Individual holdings	
1993	184	293	179	59.3	40.7	
1994	199	312	194	67.2	32.8	
1995	207	296	208	66.0	34.0	
1996	203	295	209	65.4	34.6	
1997	205	268	210	72.8	27.2	
1998	213	269	221	56.7	43.3	
1999	216	248	227	48.0	52.0	
2000	218	263	227	49.0	51.0	
2001	196	204	210	54.0	46.0	

Year	Tractors total	Norm-cattle 000 heads			Arable land 000/ha		
		Total	Agricultural Enterprises	Individual holdings	Total	Agricultural Enterprises	Individual holdings
1993	51 769	330	41	288	663	203	460
1994	52 036	334	41	293	661	200	461
1995	53 977	300	40	260	656	198	458
1996	53 554	337	37	300	658	198	460
1997	53 384	319	33	286	647	189	458
1998	57 983	311	31	280	635	174	461
1999	58 827	287	30	258	633	174	459
2000	61 063	319	31	288	598	138	460
2001	63 280	274	26	248	612	153	459

Source: Statistical Yearbook of Republic of Macedonia, 2002, State Statistical Department, Skopje

Table A- 3. GDP of Republic of Macedonia – 2000. Current prices, mil. denars.

Year	Total I=2000/94=143.8	Agriculture I- 2000/94=155.1	Participation of agriculture
	164 409	15 317	10.5
1995	169 521	18 015	10.5
1996	176 444	18 876	10.6
1997	184 982	19 780	10.7
1998	194 979	22 224	11.4
1999	209 010	23 094	11.0
2000	236 389	23 756	10.0
Total	1 335 734	141 062	10.5

(Statistical Yearbook 414/2002)

Table A- 4. Agriculture area by categories of usage in Republic of Macedonia in thousand ha.

Year	Agriculture area	Arable area					Pasture-land	Ponds, reed areas and fisheries
		Total	Plowed land and gardens	Fruit gardens	Vine yards	Meadows		
1999	1284	633	534	17	28	54	649	2
2000	1236	598	498	16	28	56	636	2
2001	1244	612	512	17	28	55	630	2
Average	1255	614	515	17	28	55	638	2

Table A- 5. Participation of individual holdings in the usage of the land in %.

Year	Category of usage						
	Agriculture area	Arable area	Plowed land	Orchards	Vineyards	Meadows	Pasture land
1999	42.5	72.5	71.5	77.4	62.8	87.3	13.1
2000	44.3	76.9	76.5	81.4	63.8	85.5	13.6
2001	43.9	75.0	73.9	82.8	62.5	89.6	13.7
Average	43.6	74.7	74.0	80.5	63.0	87.5	13.5

Table A- 6. Participation of individual holdings in the total conditional number of head and number of physical tractors.

Year	Participation, %			
	Norm-cattle	No of physical tractors	kW/ha arable area	kW/physical number of tractors
1999	89.9	96.1	3.33	27.02
2000	90.3	97.3	3.48	26.96
2001	90.5	97.0	3.72	27.83
Average	90.4	96.8	3.51	27.28

Table A- 7. Participation of individual holdings in the physical number of cattle heads in %.

Year	Livestock variety		
	Bulls and buffaloes	Pigs	Sheep
1999	95.3	66.7	91.6
2000	95.3	61.9	91.9
2001	95.9	57.4	93.1
Average	95.5	62.3	92.2

Table A- 8. Participation of individual holdings in the total production of certain cultures and products in %.

Culture	Year			Average
	1999	2000	2001	
Wheat	65.4	62.4	69.0	65.6
Barley	66.7	63.8	70.2	66.9
Corn	94.4	95.5	98.8	96.2
Rise	91.7	89.5	93.0	91.4
Sugar beet	61.4	66.2	90.1	72.6
Sunflower	34.2	38.0	26.1	32.8
Poppy	72.2	92.4	83.1	82.6
Tobacco	97.7	94.9	96.9	96.5
Pepper	96.2	96.8	99.8	97.6
Tomato	90.1	90.0	92.4	90.8
Potato	99.3	99.3	99.5	99.4
Lucerne	80.8	82.5	83.3	82.2
Cattle peas	33.0	39.7	43.9	38.9
Forage wheat	27.9	30.5	25.3	27.9
Meadow hay	95.8	96.6	85.8	92.7
Apple	94.3	88.9	90.5	91.2
Pear	94.0	93.5	99.3	95.6
Apricot	84.7	90.9	93.3	89.6
Grapes	64.0	70.6	72.4	69.0
Wine	17.0	22.7	12.9	17.5

Table A- 9. Participation of individual holdings in the total buy-out in %.

Figure	Year			Average
	1999	2000	2001	
Wheat	48.5	37.7	41.1	43.1
Corn	22.2	2.5	15.3	13.3
Potato	15.3	22.2	26.1	21.2
Edible apple	11.0	6.0	3.5	6.8
Cattle	46.6	35.1	26.0	35.9
Pigs	5.5	0.9	1.7	2.7
Sheep	52.2	68.2	56.1	58.8

Table A- 10. Number of processing subjects in agriculture.

Activity	Number
Production, processing and canning of meat and meat products	292
Production and canning of fish and fish products	8
Processing and canning of fruit and vegetables	224
Production of plant and animal oils and fats	23
Production of dairy products	238
Production of mill products, starch and starch products	148
Production of prepared food for animals grown on a farm	91
Production of sugar	7
Production of wine	46
Production of beer	7
Production of refreshment drinks	412
Tobacco fermentation	42
Processing of tobacco	10

Agro Management

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Abstract

The actors in the agricultural primary production in Macedonia belongs to two groups: Agricultural enterprises of on average 7 500 ha, and small-scale farms with an average size of 2-3 ha. The aim of this paper is to formulate some strategies for these two groups of enterprises, based on the business mission and SWOT-analysis of the two types of primary producers.

The agricultural enterprises are advised to individually adapt themselves to the surrounding environment, acting in a pro-active fashion, using professional management and also working with increasing the employees' level of commitment, hereby making it possible to increase the productivity, profitability and market-orientation of the agricultural enterprises.

The small-scale farms are advised to start production where their comparative advantages come through. These farmers should participate in continual education and advisory activities to develop their ability in entrepreneurship and to use recording systems and benchmarking to allow for continual improvement. Farmer cooperation is recommended.

Info systems in agriculture can be used as a tool both for the Macedonian Government and for the managers of the agricultural enterprises and the small-scale farmers to develop their businesses. In order to develop farm accounting data, it is suggested that NEA (National Extension Agency) continues to collect data and control data quality for example by analyses and feedback to farmers. Furthermore NEA should adapt data to the FADN system and deliver FADN adapted data to various stakeholders and try to fulfill their need of information.

The university is suggested to develop a system for combining the empirical FADN data with research results regarding new technology (including knowledge) and market data to provide agricultural planning data to advisors, agribusiness, policy makers, researchers *etc.* and eventually also directly to the most advanced farmers.

It is stressed that the modernization of the Macedonian agricultural sector implies that the number of the agricultural enterprises as well as the number of the small-scale farms will decrease.

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Background and Aim

A dictionary defines management as the conducting or supervising of something (such as a business), and judicious use of means to accomplish an end (Webster's New Collegiate Dictionary, 1979). A regular textbook defines management as "the practice of organizing, directing, and developing people, technology, and financial resources to provide products and services through organizational systems" (Cook and Hunsaker, 2001, p 5). The dictionary definition describes the central part of management, *i.e.* the act of management, and the second definition adds elements of how the act is performed. The basic idea in management of an organizational unit is to get all parts of the unit to work in the same direction, towards fulfilment of the organizational goals. Simplified, we can say that management is to do the right things and to do these things right, where what is right is determined by the organizational goals. However, what is right is also determined by the conditions and possibilities, which currently are changing considerably in Macedonia. The conditions and the prices of the agricultural markets are changing and will do so to an even larger extent when entering the European common market. Today's agricultural enterprises and small-scale farms are not competitive in the common market. The agricultural enterprises, the agricultural cooperatives, and the small-scale farms will have new business opportunities, and current production may be less profitable. More information will be needed by the agricultural firms as well as by the society. What are the best strategies to meet the future conditions?

The aim of this paper is to formulate some strategies for Macedonian agricultural enterprises, small-scale farms, farm accountancy service, and advisory systems. These strategies aims at improving the agricultural primary production through better planning data to be used by advisors and professional managers in the organizations involved in this sector.

Method

We discuss the business mission and use strategic analysis and planning to analyze strategies to meet the future for agricultural enterprises and small-scale farms. The agricultural enterprises, former kombinats or cooperatives, are very big with several thousands hectares of arable land, and they are or will be joint stock companies. They have also agribusiness enterprises. The small-scale farms are small with 2 – 3 hectares of arable land. The family owns the farm and does not have to keep books.

Data and information for the analysis are scarce. They are gathered from reports and documents and as observations during visits to Macedonia. Because of the scarce data, the focus is more on demonstrating a way of thinking strategically than on the strategies as such.

Theoretical Approaches

Strategies could be defined as the best ways to fulfill the mission of the organization. Strategies involve (see *e.g.* Cook and Hunsaker 2001 p. 38-77 or Kotler 2000 p. 63-98) the:

- choice of technologies on which products and services are based
- development and release of new products and services
- processes for producing products and services
- ways products and services are marketed, distributed, and priced
- ways in which the organization responds to rivals within the competitive marketplace.

The strategic cycle contains the element of (1) formulating the mission and vision, (2) setting goals, (3) crafting strategy, (4) organizing and financing, (5) implementing and executing, and finally (6) controlling and improving. To be useful, a statement of mission should:

- Articulate what defines the business, what it is and is not.
- Communicate to stakeholders a clear sense of meaning and direction that is motivating and energizing.
- Convey which customer wants or needs it will satisfy, and target the markets it will serve.
- Identify how it will add value, realizing its enabling actions will change over time while purpose endures

A vision incorporates current realities and expected future conditions to create a desired organizational image within a relevant time frame. Three elements are essential to a comprehensive and meaningful vision: a statement of purpose, a tangible goal, and an image of results. In addition to the visionary goal, goals should also be set at different levels of the organization in a means-end chain, and they should be measurable, time fixed and realistic. Crafting strategy involves situation analysis, time perspective, basic beliefs, SWOT-analysis, strategy formulations, and checking the strategic formulations against the mission, goals, key information *etc.*

Agricultural Organizations

Agricultural Enterprises

There is *ca.* 200 agricultural enterprises – or agrocombinates – in Macedonia. These were formed during the Yugoslav era and are based upon a collectivistic ideal and belong to the system of planned economy now abandoned. The agricultural enterprises lease their land from the government on a long-term basis. During the first four years, nothing is paid, followed by payments (in kilos of wheat) depending on what region the enterprise belongs to (Dimitrievski,

Belkovski, and Peshevski). Tied to these agricultural enterprises are both input-supplying enterprises and different kinds of processing industries.

About 150 000 hectares of arable land, pastureland and forests are used by the agricultural enterprises, *i.e.*, the average agricultural combine has *ca.* 750 hectares to manage. However, only 27% of the arable land is cultivated, leading to an average of 200 hectares cultivated by each agricultural enterprise. The production on these large farms is capital intensive, show a relatively low productivity and high production costs.

In “The Agricultural Development Strategy in the Republic of Macedonia to 2005” (Galev & Murarcaliev, 2001, below referred to as “the Strategy”), one of the aims mentioned is to transform land to private property. At present, *ca.* 15% of the land of the agricultural enterprises are leased to small-scale farmers, paying a lease of 300 kilos of wheat per hectare³ (Dimitrievski, Belkovski, and Peshevski)

Business Mission

The agricultural enterprises were, as mentioned above, formed during the communist era and have many traits in common with the kolkhozes in former Soviet Union. They were a part of the planned economy and by fulfilling the idea that collective effort was better than individualistic. Hence, the business mission of the agricultural enterprises was quite straightforward: These entities *should* produce the products wanted by the central planners, *through* using collectively owned land and people working collectively, *in order to* fulfill the quota set up by the central planners. In this business mission lay also that the agricultural enterprises should have processing industries in order to facilitate the distribution of agricultural products throughout primarily Yugoslavia, and in some cases also to parts of the Soviet Union.

Current Situation

The agricultural enterprises mainly have large-scale equipment and buildings. Much of it is in need of being replaced by modern solutions, or repaired. The need for this renewal of machinery and buildings has increased since the sector was reformed in the mid 1990's, leading to financial problems. In addition to the need to maintain and renew buildings and equipment, the liberalization of the agricultural sector will also lead to an increased competition, implying still more financial pressure.

Lending money for investments is expensive. It is not uncommon with interest-rates of *ca.* 20% (Karlsson 2003, pp 37-38). In addition, the risk situation leads to hesitation among foreign investors, which results in necessary investments in fixed assets not being made, see *Figure 1*, hence preventing the agricultural enterprises from strengthening their competitive position (*ibid*, p 38).

³ 300 kilos of wheat per hectare corresponds to *ca.* 67 Euro/ha, or 600 SEK/ha.

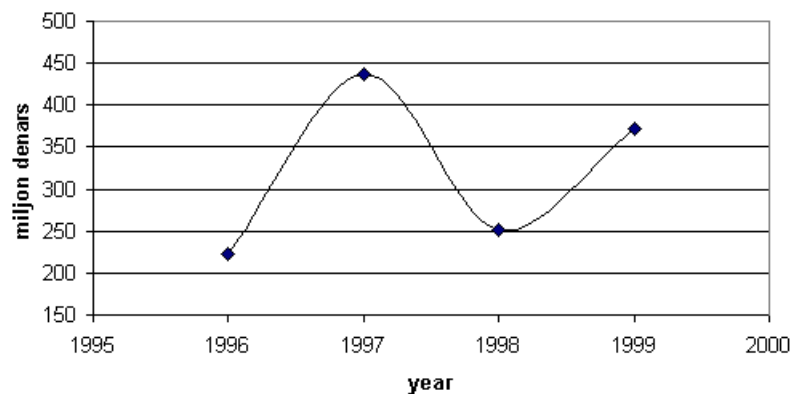


Figure 1. Investments in fixed assets in agricultural enterprises (Source: Novkovska, according to Karlsson 2003, p 38)

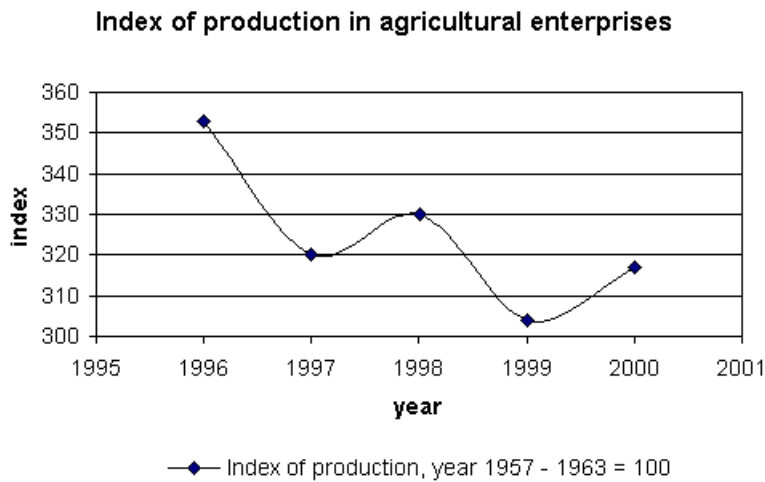
About 11 000 people are employed at the agricultural enterprises (*i.e.*, *ca.* 55 persons per enterprise, on average). As always when people experience poor property rights and a low return on the effort put in, this leads to a relatively low commitment-level, free-riding and opportunistic behavior in the agricultural enterprises. Hopefully, this development can be stopped through the possibility for employees to buy shares in the agricultural enterprises, but up till now the interest in these shares have been quite low.

In 1996, a law regulating the privatization of the agricultural sector was taken. Among other things, it says, “privatisation is not performed on such agriculture land, which is a property of the Republic” (Karlsson 2003, p 41). Additional laws, complicating and cementing the property-right problem, have followed this law: In 1998, there was a law regulating how land may be exploited, and in 2000 new rules concerning denationalization were introduced. Anyone who wants to cultivate agricultural land has to lease it from the state, creating a property-right problem and hereby a low interest to cultivate land and if land is cultivated, there is a great risk that the land will not be treated in a sustainable fashion since the farmer cannot be sure of that he will be the one that will reap the benefits of the land-maintenance.

The main crops on the agricultural enterprises are milk, eggs, and vine. In addition, there are processing industries at the agricultural enterprises. *Figures 2a* and *2b* show the production-index of the agricultural enterprises, and the selling of agricultural products from the enterprises, respectively.

Traditionally, the agricultural enterprises were owned by the state. Since liberation, some of the land (*ca.* 15%) has been leased out to small-scale farmers and the agricultural enterprises are now stock companies, owned primarily by employees (Dimitrievski, Belkovski, and Peshevski). Naturally, some agricultural enterprises have also gone bankrupt.

a:



b:

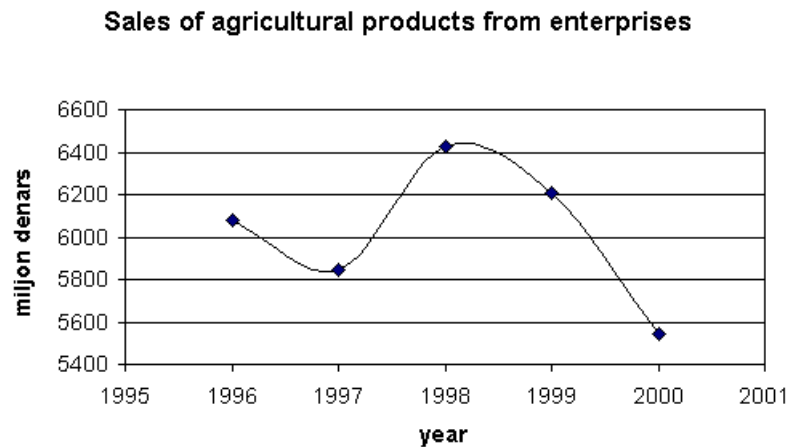


Figure 2. Summary of the production (a) and the sales (b) of products from the agricultural enterprises. (Source: Karlsson 2003, p 39).

SWOT-Analysis

Evaluation of the most important strengths

There are a potential for reaping economies of scale in the primary production, due to the size of the agricultural enterprises. In this lies that the large fields are a great strength, compared to the small fields held by the small-scale farms (see *Small-scale Farms* below). Since many of the agricultural enterprises also have processing capacity, it is possible to reap economic advantages since transportation costs can be held at a low level and the products have a greater value after being processed (compared to if they should be sold without being

processed). Finally, there is cheap labor at hand, which is a strength that could be further developed/utilized.

Evaluation of the most important weaknesses

The employees of the agricultural enterprises have a low degree of commitment to their work. This contributes to the problem of a low productivity as well as the neglected maintenance of equipment and buildings at the agricultural enterprises. Another weakness, related to the latter problem, is the difficulty of obtaining capital to reasonable terms (*i.e.* interest rates – see *Current Situation* above).

Evaluation of the most important opportunities

If legislation is adjusted and the financial problems are solved, (some of) the agricultural enterprises should be able to improve the productivity and profitability and carry on with their activities. In order to do so, however, the property rights have to be properly defined, leading to an increase in commitment of the employees of the agricultural enterprises. Managed properly, also the land of the agricultural enterprises that do not succeed to become more effective may be leased (or sold) to small-scale farmers, hereby giving entrepreneurial small-scale farmers a chance to develop. Experience shows that primary production is best managed in small-scale (a family, for example). Processing industries, on the other hand, should be of a large-scale in order to reap economic benefits. Hence, an opportunity is to have several small-scale primary producers deliver to one large-scale processing plant (perhaps through a cooperative).

Evaluation of the most important threats

The existence of non-market oriented laws, weak financial systems, and underdeveloped institutional structure, in combination with a low level of trust and commitment, imply threats to the modernization of the agricultural enterprises. Hence, there are threats to development on both the micro- and macro level (*i.e.*, on the individual and societal level/the level of the agricultural enterprises, respectively), and both in economic and psychological terms.

	Micro-level	Macro-level
Economic terms	Weak incentive-structure, leading to problems to improve productivity.	Laws, financial system and institutional structure do not support development.
Psychological terms	Low level of trust between individuals, leading to problems in collaboration.	Low trust-level leads to low commitment in organizations

Figure 3. Summary of some threats to the agricultural enterprises.

Examples of threats are summarized in *Figure 3*. In sum, the main threats to developing the agricultural enterprises are lack of trust among individuals, leading to a low commitment-level, and as a consequence also leading to problems in organizations and other types of collaborative activities. On the macro-level, the

main threats are the uncertain legislative framework, and the underdeveloped financial system, leading to high risks and as a consequence the agricultural enterprises are lagging behind in the necessary modernization-process.

As in many Western countries, young Macedonians are not interested in agricultural production, which also should be mentioned as a threat to the future development of the agricultural sector as a whole. Hence, even though the population is growing (Karlsson 2003, pp 11-12), some areas are abandoned by young people who move to the urban areas (ibid., p 14).

Objectives

In order for the agricultural enterprises to still be active in the future, a strategic analysis is needed based on for example a SWOT-analysis such as the one above. In this process, goals need to be formulated, stating *what* each enterprise wants to do, *how* this will be done and *why/for whom*. In sum, in order to survive the agricultural enterprises need to adjust to the environment and become more market oriented. In addition, politicians have to make this adjustment possible.

Formulating Strategies

Below, suggestions for strategies of both the agricultural enterprises and the Macedonian government are given. The point of departure is the idea that adjustment of the organizational form to the surrounding situation is crucial to gain organizational success (see for example Ansoff 1978, Johnson & Scholes 1988, and Porter 1998a and b, Kotler 2000, and Cook & Hunsacker 2001).

The most important strategies of a typical agricultural enterprise

Each agricultural enterprise has to adjust to the institutional circumstances surrounding them and try to plan ahead, acting in a pro-active (rather than reactive) manner. In this lies that each agricultural enterprise acts *individually* – not according to some overall plan applicable to all agricultural enterprises. The competitive advantages for each organization have to be identified by the management and the formulated strategies should aim at benefiting from these advantages. In addition (and simultaneously) each agricultural enterprise has to develop an organizational structure and an internal incentive system that makes employees more committed to the enterprise.

The most important Governmental strategies to improve future conditions of a typical agricultural enterprise

The most important task for the Macedonian Government is to facilitate the situation for the agricultural enterprises (and all other business-entities), through modern legislation, a modern financial system, and adequate institutions. In addition, it is important that agricultural enterprises that show little or no potential to survive on a market are not protected by the Government – the development-process implies that the agricultural sector has to be re-structured and if this process is stopped by politicians, the sector will not develop in an economically sound fashion and hence, the market-adaptation will not be reached. Finally, the

agricultural enterprises have to be managed by professional managers – not by politicians. If not, market-adaptation will not be reached.

Small-scale Farms

There are around 178 000 small-scale farms, or individual agricultural holdings, in Macedonia. The total area of these farms is 460 000 ha including pasture, and 229 000 ha excluding pasture. The average size is 2-3 ha including pasture. Some fields may be situated far away. Parts of the acreage are often rented and then in an uncertain contract at least in the long term. The unemployment rate is high, which means that there is no alternative occupation so the alternative value of own labor is very low and hired labor is cheap. At change of generations the farm can be divided between the children.

The literacy is high, but specific agricultural education is unusual among the small-scale farmers. One interest is to grow food for own consumption. Another is to sell agricultural products to get cash. They have no bookkeeping. The yearly variation and lack of record keeping and benchmarking results in difficulties to judge the productivity.

Adequate information is indispensable in the process of restructuring the agricultural sector, but is almost not available (Kamphuis and Dimitrov, 2002). To address part of this problem the Ministry of Agriculture, Forestry and Water Economy, supported by the World Bank-Private Farm Support Project, initiated the "Financial Farm Monitoring Program". This program was aimed at establishing a system for regularly monitoring the private farmers' sector in Macedonia in order to get more reliable data on the private farmers in Macedonia at national and regional level. A Macedonian and a EU-expert prepared the Farm Monitoring System (FMS) while the system was implemented by the National Extension Agency of the Republic of Macedonia (NEA). The project was aimed at setting up a farm monitoring system that should be representative for the individual farmers in Macedonia. It was, however, clear from the start of the project that a fully representative system could not be realized because of the statistical data needed for that purpose were not available in Macedonia. The starting point for the monitoring system was the *ca.* 1 000 farmers in the network of NEA. From this group 450 farms have been selected on the basis of the data of a pilot farm survey carried out by the State Statistical Office of Macedonia. The first analysis showed that some of the calculated figures were not plausible and for that reason an extra check have been carried out by NEA resulting in 43 farms to be excluded from the calculations, leaving 417 farms for reporting. There are still some inconsistencies in the tables, but the very short period for analysis did not allow further checks.

Because the physical data on the yields are more complete and more reliable than the financial data, the total returns per crop and animal, respectively, have been calculated by multiplying the yield per ha and animal, respectively, in physical terms with the average price received for the sold products per farm. The

direct costs of animal production have been calculated on the basis of the available financial data, but that was not possible for all crops. In general, the direct costs per crop are based on the figures of those farms that had specified these items per crop.

This approach resulted in Standard Gross Margins for milking cows, sheep and 15 crops, as shown in Table 1. The differences between the different crops raise some questions, but it was not possible to analyze the primary data. The selection of farmers in the FMS-sample was restricted to farmers who had contact with NEA, the advisory organization, so the gross margins may be higher than for the average farmer.

Table 1. *Gross margin calculation for some major crops/animals in one region. Denars per ha or animal, respectively (Source: Kamphuis and Dimitrov, 2002)*

Crop/animal	Calculated Gross		Calculated Direct	
	Output	Costs	Output	Gross Margin
Wheat	29 972	9 941		20 031
Barley	31 238	6 137		25 101
Corn	84 522	10 262		74 260
Tomato	968 567	70 522		898 044
Pepper	480 040	26 481		453 559
Watermelon	259 734	7 431		252 303
Potato	284 065	61 293		222 773
Onion	291 024	12 943		278 081
Cabbage	188 426	17 892		170 534
Beans	141 075	8 672		132 403
Plums	160 000	3 489		156 511
Apple	373 442	79 380		294 061
Grape	168 557	18 066		150 491
Tobacco	203 565	4 188		199 376
Lucerne	108 937	6 857		102 080
Milking cow	88 669	37 497		51 172
Sheep	1 897	1 384		512

The farms in Macedonia combine different farm activities. Almost 60% of the FMS-farms are not specialized in one of the farm activities. On the other hand, the specialized farms in the FMS network, defined as more than 2/3 of the production from one activity, are mostly very specialized, having on an average more than 85% of the farm's production in the main farm activity.

The FMS-farms differ considerably in farm size. The average acreage of cultivated land of all farms is 3.5 ha, varying from an average of about one ha of the sheep farms to more than seven ha for the arable farms. Less than a quarter of the farms have less than 1 hectare, while only six percent has more than 10 hectare. Most sheep farms in the sample have less than one hectare of cultivated land. They graze their sheep on the pastures in the mountains. More than 80% of the fruit and grape producers have less than 2 hectares. Most of the vegetables growers have less than 5 hectare of land. The largest group in the sample, the mixed plant farms and the mixed farms show a more standard distribution of the farms over the farm size categories.

It is common in Macedonia to combine different types of land use and most farms have arable land. Cattle farming are not based on grazing in meadows but on fodder crops. As it has been said above, most of the sheep farms use pastures

for grazing, on an average about 3 hectares. The combination of different types of animals is rather common, except for the specialized farms with fruit and vineyards. The specialized cattle farms in the sample have nine milking cows on average, and the sheep farms are rather large with an average of 450 sheep per farm (Kamphuis and Dimitrov, 2002). However, these latter figures are higher than the country average for cattle and sheep farms respectively.

The farmers have been asked to note all their incomes and payments and also the technical results such as the total production of grains and the milk yield per cow. By combining these data the total revenues of the farms have been calculated as well as the direct costs. The gross margin does not reflect the total costs of the farm; fixed costs for land (rent), capital (interest) and labor (wages) are not included. Parts of these costs are expenditures for the farmer part of it is not. Here only the recorded "paid fixed costs" are taken into account and subtracted from the farm gross margin. The remainder is the money that can/have been spent by the farmer for farm and family. The differences in "income for farm and family" per farm type are about the same as for the gross margin.

Table 2. *Gross margin by farm type. Average figures per farm in 1000 Denar, if not stated otherwise (Source: Kamphuis and Dimitrov, 2002)*

Farm type	Total number of farms	Total calculated farm returns	Total calculated direct costs	Calculated farm gross margin	Total paid general costs	Income for farm and family	Gross margin per ha cultivated land
A. Vegetable growers	56	499	285	214	86	128	102
B. Fruit producers	17	436	186	250	42	208	154
C. Vini-culturists	35	197	264	-66	54	-120	-44
D. Arable farms	21	399	209	190	38	152	25
E. Mixed plant farms	134	444	228	215	47	168	44
F. Cattle farms	29	1 467	873	594	30	564	339
G. Sheep farms	13	1 832	1 480	352	15	337	891
H. Mixed animal farms	28	1 141	521	621	25	596	322
I. Mixed farms	84	741	364	377	47	330	83
Total farms	417	649	367	282	48	234	78

There are considerable differences in Farm Gross Margin between the farms but most of them have a low income; 70% of the farms have a gross margin below 500 000 Macedonian Denar. There are large differences between the farm types. The total farm returns of the animal farms, in particular the cattle farms, are much bigger than those of the other farm types. The calculated direct costs are also higher but still leaving a higher gross margin for the animal farms than the other ones. The gross margin per cattle and mixed animal farm is around 600 000 Denar, for the sheep and mixed farms above 350 000, while the average of the other farm types is less than 250 000 Denar. The viticulturists had even a negative gross margin, which is rather strange. Further analysis of the farm data is needed to reveal the causes for the differences between the farms.

In general the gross margin per hectare is relatively high for the smaller sized farms, because they are using the land for intensive production, like vegetable and

fruit growers. The average gross margin of the farms with less than 2 hectare is two times the overall average of the FMS farms. The larger farms, however, realize a bigger gross margin and income for farm and family than the smaller farms. The average calculated income for the farms with more than 10 hectare of land is about 640 000 Denar and for the farms with less than 2 hectare 140 000, while the latter group represents half of the farmers in Macedonia.

Table 3. *Gross Margin by farm size. Average figures per farm in 1000 Denar, if not stated otherwise (Source: Kamphuis and Dimitrov, 2002)*

Farm size	Total calculated farm returns	Total calculated direct costs	Calculated farm gross margin	Total paid general costs	Income for farm and family	Ha cultivated land per farm	Gross margin per ha cultivated land
less than 2 ha	521	333	188	51	138	1.1	169
2 - 5 ha	529	294	235	41	194	3.4	68
5 - 10 ha	1 189	606	584	32	551	7.1	82
10 - 15 ha	1 360	615	745	101	644	12.2	61
more than 15 ha	1 396	652	744	102	642	22.8	33
Average farm	649	367	282	48	234	3.6	78

Business Mission

A Business Mission of a typical small-scale farm:

The holder family *will* grow agricultural products for its own consumption as well as for selling surplus quantities *through* utilizing its own otherwise unoccupied labor and current resources, *so that* the family will be self sufficient on food and get some cash payment.

SWOT-Analysis

Evaluation of the most important strengths

The yields are higher in the small-scale farms than in the agricultural enterprises, which probably can be explained by the higher commitment in a production of your own. Another strength is that these farms use their own labor that otherwise would be unoccupied. It means a low price on labor. Even if the farm should grow and need external labor, the price of labor would be low due to the high unemployment rate. If a family member should get a job outside the farm, the combination of small-scale farming and other occupation mean that the family can be provided for even in times of unemployment.

Evaluation of the most important weaknesses

The small-scale farms are not so interested to lease land from the agricultural enterprises because the land offered is often of bad quality and then it is difficult to pay the rent. This is a hindrance for growth. Another hindrance for growth is difficulties to invest based on borrowed capital because of the high interest rate. A hindrance for improved profitability, not necessarily through growth, is that small-scale farmers have limited knowledge and are quite conservative so they stick to traditional production unless they learn about new production and market is secure.

Evaluation of the most important opportunities

The cheap labor means that Macedonian farmers have an advantage compared to farmers in other countries in producing labor-intensive products and/or using labor-intensive technologies. The small-scale farming and the high number of farms normally result in varying product quality, which may mean marketing problems. However, the domestic market is not self sufficient, and the varying quality may not be a hindrance at the domestic market, where a low price is more important than a high quality. The small-scale farmers seem to be market oriented, but due to small product quantities their market power is not so large. Then, developing farmer cooperatives for processing and marketing the food products is an opportunity.

Evaluation of the most important threats

If the small-scale farmers do not succeed in cooperation, the small product volume of each farmer may mean insufficient access to the market. The average size of acreage per holding is small and even decreasing due to the inheritance system at change of generations. Growth based on investments is difficult due to high interest rate on borrowed capital. Improved product price due to organic production or other technology extensive production is not probable in the near future because there are no institutions for quality certification.

Objectives

Objectives of a typical small-scale farm

In order for the small-scale farms to increase the profitability it is important to observe the changing conditions and possibilities, forecast the consequences and think strategically to conclude on what is right to do. The small-scale farm needs to adjust to the environment and become more entrepreneurial. In this process it is vital to acquire as much information and knowledge as possible.

Formulating Strategies

Formulating the most important strategies of a typical small-scale farm

In order to reach the objectives, farmers should participate in continual education and advisory activities. If so, they could learn to think strategically and start production where their comparative advantages come through. They could also learn to use recording systems and bench marking to allow for continual improvement. It is also important to develop a positive attitude towards cooperation, so they can neutralize the market disadvantage of small product volumes.

Formulating the most important Governmental strategies to improve future conditions of a typical small-scale farm

Advisory system and continual education should be provided to improve strategic thinking and production efficiency. It is also important to provide a record keeping system and bench marking data as well as a system for communicating research results and new technologies to practical use. It would be most efficient to provide

such systems through the advisory system and with the aid of Internet directly into the advisors' computers. Advisors could identify the most profitable small-scale farms and use them as good models in order to increase farmers' interest in efficient production methods and new products, and facilitate their understanding of how to adopt the new technologies. It is also important that the government supports farmers who want to establish production and marketing associations with needed knowledge and institutional changes. The government could also provide capital at affordable interest rate to these farmers as well as to farmers who want to improve their production by investments.

Information Systems in Agriculture

Farm Accountancy Service

Mission of Farm Accounting data

NEA will provide high quality financial data regarding private farmers *through* collecting and presenting accounting data from a representative sample of private farms *so that*:

1. Researchers get empirical farm data for their economic research.
2. Advisors get a basis for advising farmers on what crops or what type of husbandry that are most profitable.
3. Policy makers get data needed for evaluating consequences of different policy measures.
4. Farmers get a basis for bench marking.

The provided financial data will be broken down into:

1. Annual balance sheets and profit and loss accounts. The farms are classified into different groups by their major production for example livestock or grain production, and the economic result from one single farm can be compared to a number of farms in the same class. The farmer, when applying for loans for example, can also use this type of annual reports.
2. Gross margins, receipts and direct costs for each crop and type of animal are collected and figures per hectare or per animal are calculated. Gross margins are useful both for researchers and policy-makers. Gross-margins do sometimes only contain economical figures and sometimes also quantities and prices.
3. Relationships between different variables for example sold milk in relation to used forage.

Current Situation concerning bookkeeping data

The private farms are not obligated to keep books. The government is however encouraging farmers to register as firms and then keep books and make annual reports in the form of balance sheets and profit and loss statement. A program named "Be a farmer" has this purpose. The enterprises and the agricultural

cooperatives are required to keep books and the Ministry of Agriculture collects data from the bookkeeping. (Lundin, 2003)

The Farm Monitoring System (FMS) implemented by NEA on a sample of private farms has been described above (page 57). Several international donors are working in the field of Agricultural statistics. The European union is financing a project in cooperation with the Ministry of Agriculture in order to improve analysis and policymaking. A SIDA-financed project is working with agro management and is cooperating with NEA in order to use the data for advising purposes. A SIDA-financed statistical project is working in cooperation with the Statistical Office and NEA in order to make agricultural statistics.

SWOT-Analysis for the data collected

Evaluation of the most important strengths

The way of collecting data with monthly visits on the farms makes it easy to collect additional data and to check the quality of the data. The same advisor who is giving other advice also collects the data. The timeliness is very good. In FADN the data has to be compiled 15 months after the accounting year. NEA put in all the data for the year 2002 in the database and is ready to use it 3 months after the reference period. The data is put into a relational database and an up-to-date technical system that makes it easy to work with the data for example to choose the print-outs that you are interested in.

Evaluation of the most important weaknesses

The data is only collected from private farms and are therefore not representative for all farms. Similar work as the one carried out by Kamphuis and Dimitrov (2002) has not been published on data from the agricultural enterprises and it is unknown if this is possible. However, from the statistics it seems probable that the gross-margins will vary between the private farms and the agricultural holdings. At this point the population of all farms and the structure of farms in Macedonia is also not known, which makes it impossible to relate the figures to a national level. The knowledge of how to build up routines for making analyses and to choose what analyses in the field of agricultural economics to make seems weak. Furthermore the staff collecting the data on the farms is not specialized in collecting economical data. Since the data have not been analyzed except by Kamphuis and Dimitrov (2002) the quality of the data is not known in detail.

Evaluation of the most important opportunities

The content of the data collected by NEA makes it possible to connect specific costs with specific lines of production hence it is possible to make Gross margins with the data. Since about the same data is collected in Macedonia as in the European union comparisons can be made between Macedonia and the current member states as well as the applicant countries. Data is collected from medium- and large sized private farms, which is one of the most interesting groups of farms when it comes to the potential of development.

Evaluation of the most important threats

The quality of the data used in the report by Kamphuis and Dimitrov (2002) as well as the quality of the process of collecting the data is questioned. The collection, editing and analyzing of farm accountancy data is expensive. The long-term financing of the collection of data is insecure. Farm accounting data, *i.e.* economical data, is data that the farmer might feel is private and too important for his business to inform someone else about. The farmers' willingness to deliver data is therefore a threat to the possibility of setting up a farm accounting system.

Formulating Strategies

The following strategies focus on the importance of using the data for different purposes and in doing so continuously test the quality of the data and match it with the users needs. The University of Agriculture might for example start research-projects developing and discussing gross margins. Other users might be the ministry of Agriculture and NEA themselves. This means that routines have to be implemented to make data easily available for different kinds of analyses. In doing so it is important to respect the individual farmers need for confidentiality otherwise they might not be willing to deliver data.

At the moment data is collected, but there is no control-system that could be used to edit the data. It is therefore important to implement a control-system and create routines that make it possible to assess the quality of the data and to improve it if the quality is lacking.

Advisory Systems

Mission

The advisory system *will* communicate information, knowledge and experiences from the university, the Farm Monitoring System and other information sources *through* using the most efficient technological and pedagogical means as well as current advisory organizations, *so that* farmers can make well founded/good decisions about their business and increase their managerial ability.

Current Situation

As mentioned earlier, there is a lack of trust among farmers, which leads to that it is not common that farmers take advice from other farmers – at least they do not discuss their economy with others. In addition, farmers do not view themselves as entrepreneurs, which leads to that new business endeavors are relatively small. The university does at present not engage in further education of advisors, nor for farmers.

There are some actors – NEA and private – that deal with advising farmers, sometimes for free. There are also some private advisors that previously were supported by the World Bank project and now have formed an organization named Agro Consulting Vizi. In some cases salespersons dealing with the farms also give

advice to farmers. There does not seem to be a system for continual education of the advisors, though.

SWOT-Analysis

Evaluation of the most important strengths

Since the literacy-level is 90%, written materials can be used and farmers have the basic skills of writing down their calculations and plans, for example. Hence, farmers and advisors have every chance of succeeding in analyzing and developing farmers' enterprises. An additional strength is that even small improvements will give large positive effects.

Evaluation of the most important weaknesses

As mentioned several times, there is a mental resistance towards taking advice (at least from peers), which constitutes the most important weakness. In addition, the advisors' knowledge may in some cases lack important aspects that are necessary to help farmers. In other words, it is important that the advisors keep themselves updated on issues dealing with managing a farm.

Evaluation of the most important opportunities

If farmers realize that advisors really can help them becoming better farmers, chances are high that farmers start trusting these actors. It is important to remember, however, that such a process – building trust among farmers and advisors – is a long-term one. Here, the FADN-system will be a good basis for the advisory system, especially combined with a system like Agriwise⁴.

Evaluation of the most important threats

The main threats to the advisory system is, first of all, the widespread lack of trust among farmers as well as between farmers and external actors trying to influence farmers. Second, in order for the advisory system to work in the long-run (hereby building trust), advisors have to be well educated and take part in further education and training. In addition, the legislative framework formulated by the Government may, if not formulated properly, prevent the advisory system to develop, hence causing problems for the primary agricultural sector.

Objectives

The objectives for the advisory system in Macedonia ought to focus on helping farmers – both on large and small farm-units – to develop their enterprise. All advisors have to realize that they are there for the farmers and not the other way around. In order to succeed doing this, the advisory system has to be flexible and

⁴ Agriwise is a university division providing agricultural planning information through Internet to researchers, teachers, policy makers, advisors, farmers etc with the aid of a database, an enterprise budgeting module (for gross margin calculation) and a farm-planning module.

adapted/specialized to different types of farm-types, *i.e.* advisors need to specialize their knowledge and concentrate on specific strata of the farms.

Formulating Strategies

The strategies for the advisory systems include that a system for disseminating research result and knowledge from the university to the small-scale farms and agricultural enterprises has to be formulated. The university can play a key role in further education and training. Such a strategy would be very helpful for the Macedonian agricultural sector, being in a turbulent phase of change. The Swedish Agriwise system could be used as an important feature in this education/training effort, since its economic part contains a database of research results and knowledge, gross margin calculations for agricultural activities based on the database, and farm-planning module based on the gross margin calculations. To educate agronomists with a specialization in farm management would also be a strategy that benefits the sector.

In order to change the agricultural enterprises into market-oriented, modern firms, a specific strategy for educating advisors for this type of large-scale farms could be useful.

In addition, the agricultural sector as a whole would benefit from an effort to facilitate for private advisory firms, combined with programs for education for the advisors. To further benefit the sector, advisors should be given free hands to reach out to farmers in their own ways.

It is important that there are domestic information materials – books, brochures, computer software, *etc.* Here the university and advisory firms/agencies may collaborate. Also here it is important to overcome farmer resistance in some way – perhaps through using well liked and trusted farmers as “teachers”.

Summary and Conclusions

It is our belief that the Macedonian agricultural sector needs a better mix of large and small actors. The small-scale farms need to become larger and the agricultural enterprises fewer and in many cases smaller. One tool to achieve this is through farmer cooperatives, governed solely by the members of the cooperative. It seems like one obstacle here is the legislation surrounding farmer cooperatives, and another is the lack of trust among farmers. Our guess is that there might be financial obstacles too. Politicians as well as academics should put an effort into overcoming these obstacles.

The aim of this paper was to formulate some strategies for agricultural enterprises, small-scale farms, farm accountancy service, and advisory systems. These strategies aims at improving the agricultural primary production through better planning data to be used by professional managers in the organizations involved in this sector.

The agricultural enterprises are advised to individually adapt themselves to the surrounding environment, acting in a pro-active fashion, using professional management and also working with increasing the employees' level of commitment, hereby making it possible to increase the productivity, profitability and market-orientation of the agricultural enterprises.

The small-scale farms are advised to start production where their comparative advantages come through. These farmers should participate in continual education and advisory activities to develop their ability in entrepreneurship and to use recording systems and benchmarking to allow for continual improvement. Farmer cooperation is recommended.

Info systems in agriculture can be used as a tool both for the Macedonian Government and for the managers of the agricultural enterprises and the small-scale farmers to develop their businesses. In order to develop farm accounting data, it is suggested that NEA:

- continues to collect data, control data quality and adapt data to the FADN system
- delivers FADN adapted data to various stakeholders and tries to fulfill their data need
- understands how data is used, analyzes data as a part of the total quality management as well as to develop feedback to the farmers

Advisory systems and continual education should be provided to improve strategic thinking and production efficiency. It is also important to provide a record keeping system and bench marking data as well as a system for communicating research results and new technologies for practical use. It would be most efficient to provide such systems through the advisory system and with the aid of Internet directly into the advisors' computers. The university is suggested to develop a system for combining the empirical FADN data with research results regarding new technology (including knowledge) and market data to provide agricultural planning data to advisors, agribusiness, policy makers, researchers *etc.* and eventually also directly to the most advanced farmers. The system should be developed in close cooperation with user representatives to ensure that it will fulfill user requirements. Adopting a system like the Swedish Agriwise system could mean a quick start.

In addition to this, the advisory system has to be modernized. Advisors could identify the most profitable agricultural enterprises as well as small-scale farms and use them as good models in order to increase farmers' interest in efficient production methods and new products, and facilitate their understanding of how to adopt the new technologies. It is also important that the government supports farmers who want to establish production and marketing associations with needed knowledge and institutional changes. The government could also provide capital at affordable interest rate to these farmers as well as to farmers who want to improve their production by investments.

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