# INTEGRATION - BASIC FACTOR FOR ENSURING ECONOMIC EFFICIENCY OF AGRICULTURAL UNITS (CASE STUDY AT S.A. „AGROIND" BEREZENI, VASLUI COUNTY)

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**Abstract**
Integration is a modern form of agricultural production organization, which can provide a positive economic effect.
By agrifood integrating can be established simple and efficient functional connections between production, capitalization and consumption, leading to the development of integrated chains (partially or totally) on products or product groups.
Vertical integration aims to manage one or more products, from raw material to finished product, through specialized channels, controlled by a decision center.
The authors have proposed based on a case study to highlight the effects of integration on economic efficiency of agricultural units.

**Key words**: **agrifood integration, economic efficiency, agrifood product**

**Integration** is the activity of regulation and coordination of interdependent processes, involving several integrated units under the same integrator pole **(Avarvarei I., Macovei Gh., 1987; Bidilean V., Bidilean O., 1998, Chiran A., Gîndu Elena, 2007; Fruja I., Csosz I., Creț N., 1994).**

Integration is a modern form of organizing production and distribution of food products, which are creating coordination, on a contractual basis or under one center of decision making, of different activities.

Agrifood integration may take place at both macroeconomic and microeconomic level, and aims the same type of activities (production, processing, recovery) between units located on the same rung of the economic chain (*horizontal integration*) and between units upstream or downstream of agricultural production (*vertical integration*) **(Cojocaru C., 1998; David. N., Istudor N., 2000; Petrache A., 2003; Popescu D. Maria, 1998).**

In practice we can find different organizational forms of integration, which appear as a necessity of diversification of agricultural units and effective cooperation with agricultural companies and individual producers. In this context, revitalizing agriculture, requires the adoption of sustainable agriculture concept, sustainable and effective locally integrated, territorial.

## MATERIAL AND METHOD

The case study has been conducted at S.A. AGROIND Berezeni, Vaslui County and aimed at highlighting the integration role played in the development and effectiveness of the unit.

The authors used a system of indicators that were related to technical equipment, total income, equity, gross profit, investments, bank loans and subsidies.

The analysis covered the last 10 years, with the reference years: 2002, 2005 and 2011.

## RESULTS AND DISCUSSIONS

S.A. AGROIND Berezeni has an agricultural area of 3727 hectares, of which arable crops in 2012, occupies 3290 hectares The structure shows the share of arable crops in cereal grains (54.0%), followed by technical crops (30.9%) and fodder plants (15.1%).

Technical equipment is the main structure of agricultural machinery, warehouses and silos for drying and storage of agricultural products, animal

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shelters, mill for processed wheat, mill for processing corn, bakery, etc. (tab. 1).

*Table 1*

Technical equipment of S.A. AGROIND Berezeni, Vaslui County

| Specification | U.M. | 2002 | 2005 | 2011 | % against 2002 |
|---|---|---|---|---|---|
| Physical tractors | pieces | 36 | 34 | 32 | 88.9 |
| Tractor plows | pieces | 34 | 34 | 32 | 94.1 |
| Seeders | pieces | 7 | 7 | 6 | 85.7 |
| Disc harrow | pieces | 12 | 12 | 14 | 116.7 |
| Cultivators | pieces | 4 | 4 | 6 | 150.0 |
| Fertilizer spreading machines | pieces | 2 | 4 | 4 | 200.0 |
| Grain harvesters | pieces | 4 | 4 | 4 | 100.0 |
| Different trailers | pieces | 14 | 14 | 16 | 114.3 |
| Trucks | pieces | 6 | 6 | 4 | 66.7 |
| Mill for processed wheat | 10t/24h | 1 | 1 | 1 | 100.0 |
| Mill for processing corn | 24t/24h | 1 | 1 | 1 | 100.0 |
| Area for milk preparation | 2000 l/24h | 1 | 1 | 1 | 100.0 |
| Bakery | 1000 Kg/24h | 1 | 1 | 1 | 100.0 |
| Animal shelters | no./m2 | 12/9600 | 12/9600 | 12/9600 | 100.0 |
| Warehouses | no./tone | 3/2000 | 3/2000 | 5/4500 | 166.7/225.0 |
| Fixed assets – total | mil.lei | 3614280 | 4825358 | 9808096 | 271.4 |
| Current assets –total | mil.lei | 866480 | 1223159 | 4383925 | 505.9 |

Analyzing the data presented, it appears that, a physically tractor back 102.8 hectares, with the mention that high-powered tractors, and the value of fixed assets increased 2.7 times and of the current assets 5 times.

**Integrating agricultural production** is a higher level of intensive development of agriculture, a new stage of the process of vertical cooperation. General characteristic of this process is increased specialization of production, separation from agriculture activities and their takeover by the upstream and downstream sectors of agriculture. Separating these activities will bring them together in a unique complex of branches, which run as one, linked together in terms of technology.

Concrete implementation of the integration process is achieved by measures of organization, planning and management (fig. 1).

**It requires a new approach to major problems of agriculture,** which requires the establishment of firm sizes allowing the practice of sustainable agriculture, able to apply advanced technologies and lead to profitability and efficiency, to strengthen them economical and organizational.

Integrating agriculture is considered as part of the mechanism of economic development, including locally. Therefore, the transition from traditional agriculture (extensive), in a sustainable and efficient agriculture, priority approach requires integration of agricultural and food units in a complex economic system.

**Integration in agriculture** acts as a major process that provides ample opportunities to introduce scientific and technical progress for the modernization and production development for profitable units and raising the living standard.

**Investments in S.A. AGRO Berezeni, Vaslui county** took place in several stages:

**• in 1995:**

- have acquired 15 tractors U-650 and 5 Romanian combine;
- two mills were built: one for processing wheat and one for processing corn;

**• in 2008:**

- modernization of the two mills for processing grain (wheat and corn);

**• in 2006:**

- purchase of two tractors Valtra - 210 hp, two plows with five furrows, two seeders for cereals, fertilizer, two combiners, two balers;

**• in 2008:**

- modernization of 5 stables for dairy cows (roofs, paths for feeding and manure removal);
- milking room arrangement computerized with 20 stations - DeLaval;
- adduction of water - with modern cattle watering system;
- platform for collecting garbage and manure pits;
- livestock equipment (emptying, technological trailer, multifunctional tractor);
- construction of three silos with modern dryer, electronically weighting machine, controlled ventilation system, modern unloading and handling systems;

-purchase of two Valtra tractors -110 hp, two Fend combine, two corn seeders, two rippers, two plows with five furrows, two manure spreading machines (MIG);

**• in 2011:**

- rehabilitation of irrigation system Albita-Falciu (1.2.5 Measure).

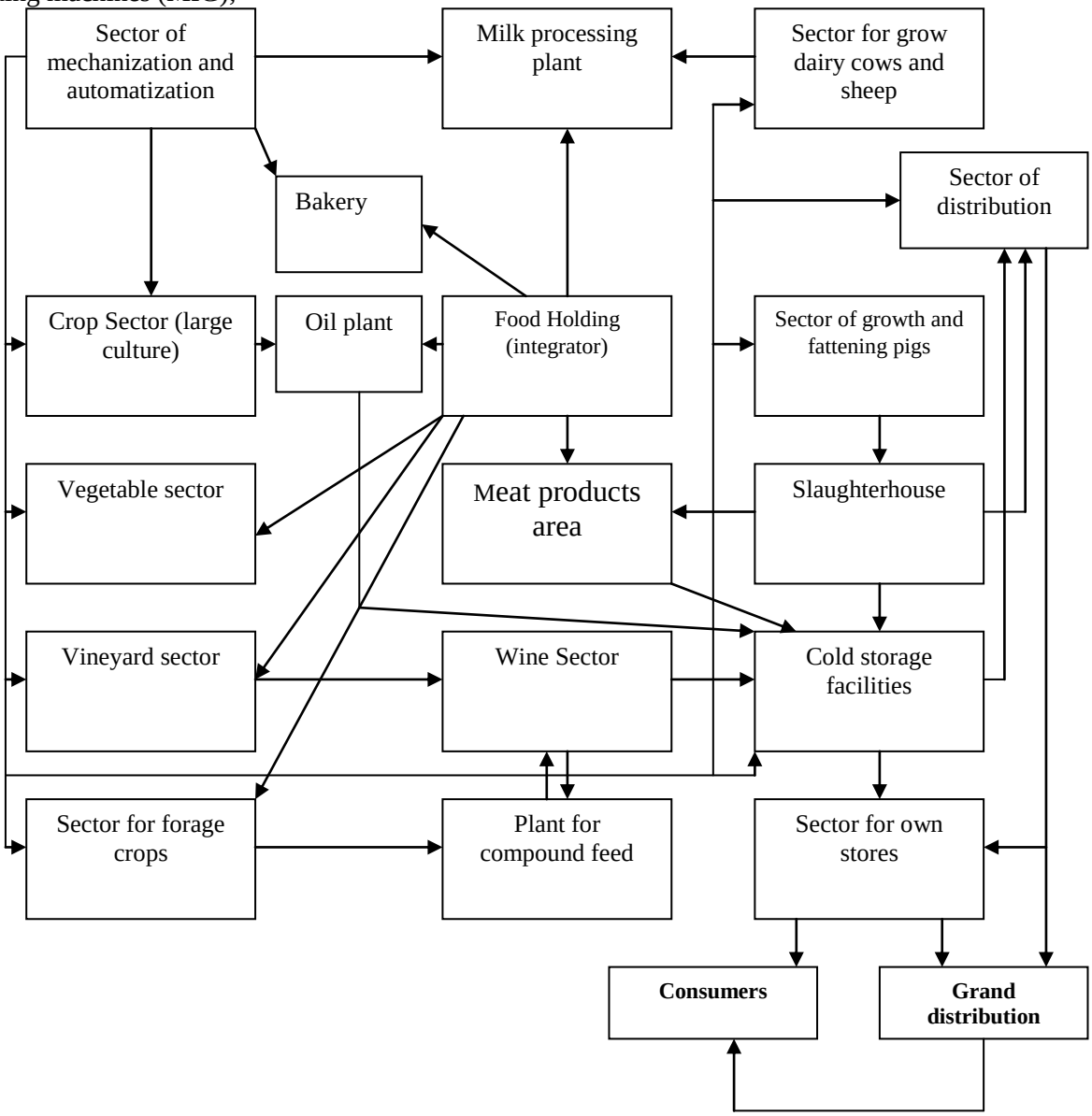


Figure 1 **Organization design of integrated agricultural production in rural area Berezeni**

**Agricultural products** recovery involves several steps such as: *reception, conditioning, shipping or storage for different time periods (if applicable).* Grain delivery can be achieved either directly by the producers (free market) or through intermediaries, domestic or foreign.

**In the horticultural products recovery,** the flow begins with the collection, which includes a variety of operations that depend on maintaining product quality.

**Recovery of animals for meat** is provided by the farmers on a free market (*live or fresh*) or through intermediaries, who buy live animals from producers, which directs them either to their own slaughter or other beneficiaries ***(fig. 2 ).***

**Milk recovery** is made by producers, directly on the open market (fresh milk or dairy products) or indirectly, by points or organized milk collection centers in the localities, either directly from milk processing units ***(fig. 3)*** .

In farms specialized in raising dairy cows, milk is delivered in the *"franco farm"* system, the collection and transport is provided by the processing plants.

In the distribution circuit of agricultural and / or food products must be taken into account a number of key elements such as:

- ✓ *specifications;*
- ✓ *manner of dispatch;*
- ✓ *production and storage capacities;*

- ✓ *number of warehouses, the regional warehouses and platforms;*
- ✓ *number of transport means;*
- ✓ *economic and financial justification of warehouses, regional warehouses and platforms;*
- ✓ *areas of influence;*
- ✓ *customers (structure, geographical distribution, trend, seasonal, supplies, constraints) etc.*

The integration process had a positive effect on financial results of the unit (tab. 2).

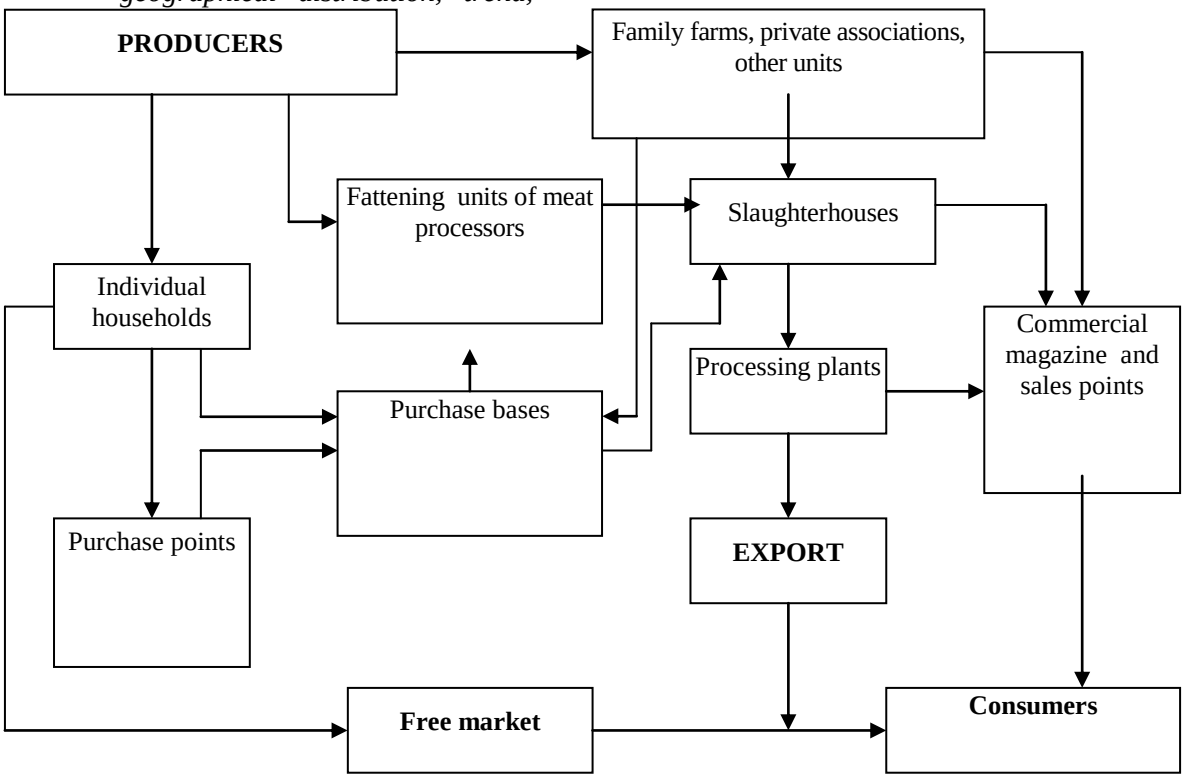


Figure 2 **Recovery circuit of animals for meat**

Table 2

**Evolution of total revenues and financial results S.A. AGROIND Berezeni during 2002-2011-mil.lei**

| Specification | 2002 | 2005 | 2011 | %/2002 |
|---|---|---|---|---|
| Total revenues, of which: | 21684850 | 4966724 | 13090485 | 60.4 |
| from agriculture | 20287839 | 3824285 | 10412965 | 51.3 |
| from other activities | 612400 | 138853 | 127806 | 20.9 |
| financial incomes | 120 | 218 | 125522 | 104.6 |
| Subsidies | 784500 | 1003368 | 2424192 | 309.0 |
| Gross profit – total | 44750 | 41125 | 200095 | 447.1 |
| Net profit – total | 34816 | 25276 | 144473 | 415.0 |
| Net profit rate - % | 0.21 | 0.83 | 1.55 | + 1.35 |

As it can be seen from the data presented, although 2011 hasn't met very favorable conditions for agricultural production, efficiency of production costs was higher so that total gross profit was 4.5 times higher than in 2002, and the rate of return of 7.4 times.

It is also remarkable that the social capital of the unit in 2011 was 2, 3 times higher than the reference year, total investments increased by 12.3 times, bank loans, 12.9 times, EU funds (grants) attracted 9.5 times, and subsidies, of 3.1 times.

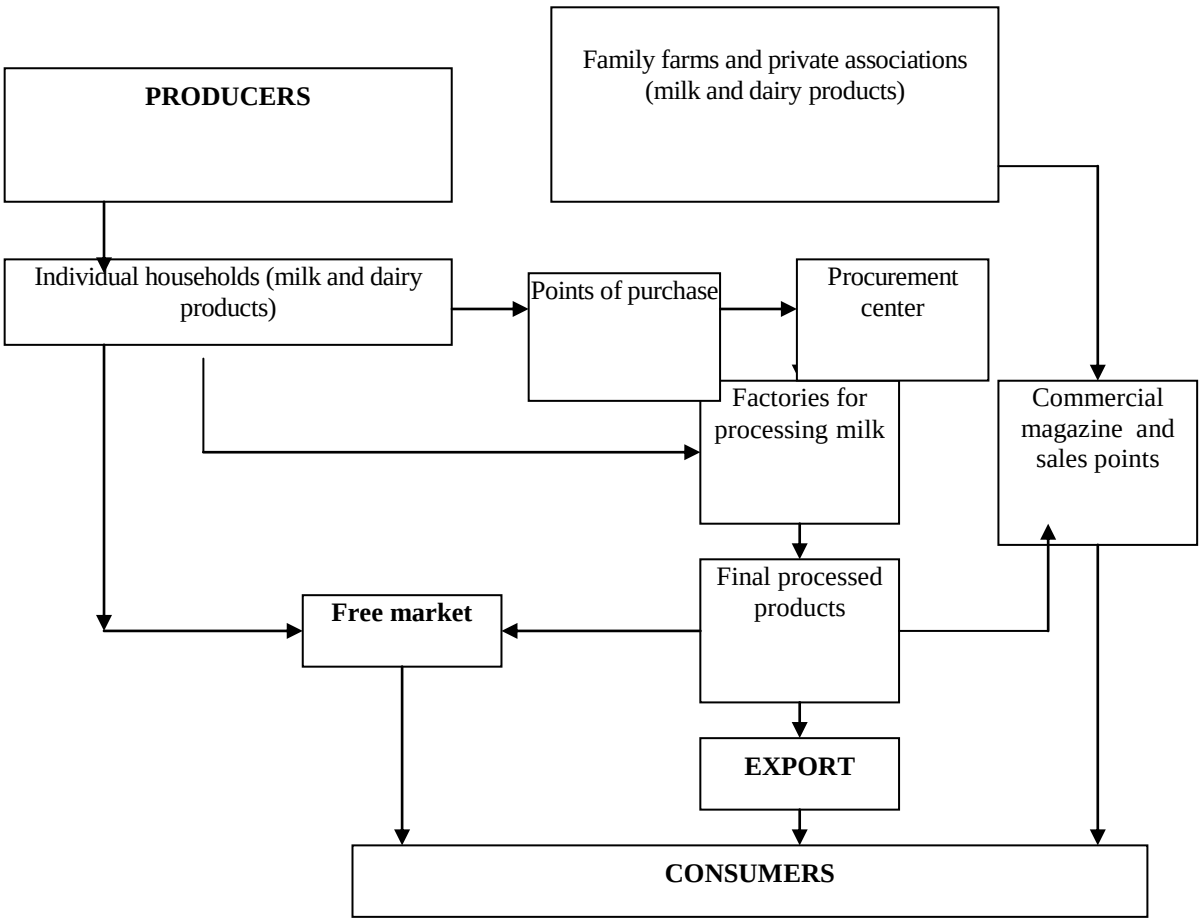


Figure 3 **Recovery circuit of milk and dairy products**

## CONCLUSIONS

1. S.A. AGROIND Berezeni, Vaslui County is an agricultural unit, with a complex structure, oriented to a semiintegrat production.
2. The transition from traditional production system, in which the unit was providing agricultural inputs, to a European modern system, in which the production, processing, distribution and recovery is made by S.A. AGROIND Berezeni, could be achieved through modern management, advanced, which targeted a new approach to organization and management system of production, the attraction of European funds and their orientation towards development and strengthening of unit was essential.
3. Conducting the investment was made in stages and resulting in building two mills of wheat and corn processing, purchase of agricultural machinery and livestock, the modernization of two mills for processing wheat and maize, 5 stables for dairy cows, arranging a computerized milking room - with 20 seats for dairy cows, construction of three modern grain silos, irrigation system rehabilitation, etc..
4. The integration process of agricultural production had a positive effect on strengthening and streamlining the unit, so that, in 2011, the total profit (gross and net) was over four times higher than in 2002, and the efficiency and cost materialized in a profit growth rate of 7.4 times
5. In the future, the unit must continue the integration process by modernizing milk processing plant (currently in storage), the construction of a plant oil, a fodder factory, a wine sector, establish a growth sector and fattening pigs, meat processing workshop, a district of own stores, etc.

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