PIG HEALTH AND PRODUCTION MANAGEMENT

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Summary

Based on the data communicated by the specialized organizations, a report regarding the status of pig meat production in the world was elaborated, having as start point the fodder crisis. The existence of a free trade makes possible the supply with raw materials from any part of the globe, thus the knowledge of the epidemiologic status, fodder price, along with the shelter conditions will set the price of the pig meat. Fodder crisis from 2007 determined a decrease of the production, decrease that is hoped to be balanced this year, in 2009.

Key words: pigs, meat, price

Fodder price impact on the pig meat price

Annual analysis of the tendencies in the pig meat production records, for the first time, a drop after a long period of time. This fact should not surprise us because most of the international market analyses in 2008 were uncertain. The unprecedentedly high price of the cereals in 2007 was not predicted by any of the pig meat market analysts.

From the point of view of the pig meat producers, it is clear that 2008 was the year in which productions were regulated, especially for the small breeders. Available data for 2007 showed that some industrial companies around the world adjusted their prices in accordance with cereal price from 2006.

Price increase on the world market is predicted for the following period as well, as stated by the “Agricultural Outlook” magazine, published by the Organization for Cooperation and Economical Development comprising members from 30 countries and by the Agriculture and Food Organization of the United Nations (FAO). For the 2008 – 2017 period is predicted that the world meat production will increase by 2% a year, even though there will be differences in the increase percentage depending on the region. Meat consumption in the developing countries (especially the Asia-Pacific area) will increase, being estimated to 80% of the global increase.

Uncertainty is the most appropriate word for the near future, and this can be easily seen from the available data shown on www.fao.org and www.oecd.org, data which admit such uncertainties. These specify that instability on the financial market, an increase of the price inflation in foods, signs of
economical weakening and interest for the food safety are all at hand. Five variants could be taken into account to explain this phenomenon:

- Use of the cereals and vegetable oil in animal feeding,
- Oil price,
- Greater meat consumption in the economically developed countries,
- Cereal quantity in the following years,
- Exchange rate of the US dollar in relation to other currencies.

It is expected that the developing countries dominate the cereal production until 2017, reason why Brazil will sustain 30% of the pig meat exports till the end of this period. Also, USA, Canada, Argentina and Australia make large exports. On the opposite, the export market of the EU will be dropping throughout this time.

Meat import dependence will increase in the developing countries, market requirements exceeding the national production capacity. Among the developed countries, Russia will remain, before Japan, the greatest meat importer until 2017. There are factors at international level which continually change, such as demand and offer, will lead in the 2008-2017 period to a price increase greater than until. Prices for the beef and pig meat will be 20% higher because the cereal prices will increase by 40 – 60%.

It was predicted, in accordance with a FAO report, a natural attempt and increase tendency, at global level, of the pig meat production in 2008 by 2%, after the 3% decrease in 2007 due to the losses in China (national centre of contagion for PRRS). In South America, it is anticipated a pig meat production increase, at all the producing countries level, a situation occurring consecutively for the last 4 years. Argentina, Brazil and Chile, which have high pig meat productions, are those which contribute the most to the 4% expansion of this region. In Russia, pig meat production increased by 6% in 2008 due to effective increases, phenomenon occurring in the US as well. In contrast, in Canada and EU, a production decrease was recorded.

If the world pig meat production is followed, a continuous increase can be noticed, by 15% in 1990-1995; by 12.5% in 1995-2000 and by 19% between 2000 and 2006.

In 2007, when it was thought that the increase would continue with another 3%, and the world production should have reached 110 million tonnes, a decrease of the production under the level of that from the 2005-2006 period, was recorded.

Regional productions are given in Table 1, showing a decrease of the global production. From the FAO data, it is suggested that the pig meat production was of 99 million tonnes in 2007, by 7.5% less than that of 2006, and in 2008, an increase was predicted, by 1.8% that is 100.5 million tonnes, which was never done.
Table 1 data clearly underline the differences depending on the region. The only decrease, between 2006 and 2007 occurred in the Asia-Pacific region due to some disease, fodder costs and, of course, Asian industry decline. Europe recorded a slight increase, but greater increases were recorded in North America, Latin America and Africa.

These data affected the local market for pig meat. Asian countries imported more and exported less. The reverse was recorded in the European states. Total exports from North America decreased because, even though USA established new records in pig meat exports, these counterbalanced with Canada’s market loss, due to Canadian dollar strengthening.

Even under such conditions, Asia-Pacific region produces approximately 54% of the world pig meat, followed by Europe with 27%, North America with 12%, Latin America with 6.5% and Africa with 1%.

In Asia region, the greatest contribution in pig meat production belongs to China with approximately 44% of the world’s production.

The annual list of the first 20 countries producing pig meat is shown in Table 2 and confirms China as being the biggest producer. Nevertheless, the production decreased from 49 million tonnes in 2006 to 44 millions tonnes in 2007, whereas in 2008, 44.7 million tonnes were reached.

Listing order was done according to the pig meat produced in 2007. This brought few changes in the middle and lower part of the list. Compared to last year, Russia comes before Canada, and Holland exceeds Japan and the Philippines.
Annual pig meat production of the countries ranked as the first 20 in 2007 (x 1000 tonnes)

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<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>41.406</td>
<td>42.982</td>
<td>44.358</td>
<td>45.186</td>
<td>47.016</td>
<td>50.106</td>
<td>48.700</td>
<td>44.200</td>
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<td>5</td>
<td>Brazil</td>
<td>2.556</td>
<td>2.730</td>
<td>2.872</td>
<td>2.560</td>
<td>2.621</td>
<td>2.710</td>
<td>2.830</td>
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<td>6</td>
<td>Vietnam</td>
<td>1.409</td>
<td>1.515</td>
<td>1.654</td>
<td>1.795</td>
<td>2.012</td>
<td>2.201</td>
<td>2.405</td>
<td>2.620</td>
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<td>7</td>
<td>France</td>
<td>2.318</td>
<td>2.315</td>
<td>2.350</td>
<td>2.333</td>
<td>2.311</td>
<td>2.274</td>
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<td>Poland</td>
<td>1.892</td>
<td>1.820</td>
<td>1.981</td>
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<td>1.923</td>
<td>1.926</td>
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<td>1.509</td>
<td>1.498</td>
<td>1.583</td>
<td>1.706</td>
<td>1.725</td>
<td>1.735</td>
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<td>Canada</td>
<td>1.640</td>
<td>1.731</td>
<td>1.854</td>
<td>1.882</td>
<td>1.936</td>
<td>1.920</td>
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<td>1.714</td>
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<td>1.536</td>
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<td>1.044</td>
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<td>1.063</td>
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<td>962</td>
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<td>898</td>
<td>911</td>
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<tr>
<td>20</td>
<td>UK</td>
<td>923</td>
<td>781</td>
<td>795</td>
<td>715</td>
<td>720</td>
<td>706</td>
<td>697</td>
<td>739</td>
</tr>
</tbody>
</table>

† just 3 out of the 20 countries produced significantly less pig meat in 2007 compared to 2006, in spite of the high costs.

There are numerous factors affecting the economic profile of the daily swine production. Thus, several aspects need to be taken under consideration, aspects whose practical application leads to profit gain.

**PLANNING**

The scope and necessity of planning results from the necessity of the farm’s (firm’s) manager to accomplish, by specific levers of planning and organizing, a coordination and control in conformity with the statement that planning is the basic Function of management. If the planning is appreciated as being the keystone (J. Ivancevich) or the fundamental function (H. Koontz) this is due to the fact that all the managerial actions from organizing, leading and control pursue to accomplish the decisions of planning.

The scope of planning is to set objectives towards which the activity will be headed in the future, as well as the means by which (actions, needed resources and their allocation) they are achieved. Through planning, the most appropriate course of the future actions is set so that the farm will yield the desired results.
If, in a succinct statement, the scope of planning is to anticipate the trajectory followed by the farm in the future, its necessity, stated in like-so manner, can be justified as follows: people need to precisely know and understand what they have to do, and what they do needs to meet the requirements of the environment and the possibilities of the organization. To have an ample argument with regard to the necessity of planning we will take under consideration the following factors:

a. Economical organizations complexity

In the modern society, economical organizations, in general, and, especially, those industrial became complex units. This characteristic is determined not only by the dimensions and complexity of the industrial activities, but also by the complicated and numerous interferences existing between the organizational components, by the social role the community attributes. Because the complexity of the economical organization is not a resultant of only its dimensions but also of other many factors, planning is needed not only for the big enterprises but also for the small and middle ones.

Under circumstances such as those of the modern society, planning – that is, thinking preceding action – becomes moreover necessary. Through planning, the entire economical organization, but also each of its components, becomes capable to define its objectives and actions, as well as the conditions to achieve them.

b. External environment changes

The organization, as economical system, is just a component of some more comprising systems (at regional, national and international level) which constitute the general environment.

The actual general environment is dynamic and uncertain; changes undergo in a rapid rhythm, are difficult to be anticipated and have a strong impact on the economical organizations.

To maintain the economical system in equilibrium becomes possible only by setting an appropriate course for the future actions. The more dynamic and uncertain the environment is, the more needed the planning is. If such a statement is a paradox, then, the industrial organizational managers must be able to overcome it (Thomas Peters - *The Chaos Management*).

c. Duration for transforming decisions into results

If the period of time for which the planning is done must be the greater the external environment is more dynamic and uncertain, the objectives that are set are more ample. Thus, the time interval between the moment of adopting the decisions of the planning domain and the one in which results are obtained, widens. Therefore, the planning requires managers to take under consideration everything that is possible to affect the accomplishment of the set objectives, to find modalities to reduce the uncertainty and risks. Planning, thus, becomes the instrument that helps managers cope with changes.
PROCESS OF RISK MANAGEMENT

The risk in the activity of a farm (firm) refers to the probability not to respect the objectives set in terms of performance (not accomplishing the quality standards), program (not conforming to the execution deadline) and cost (exceeding the budget).

Risk element is any element which shows a measurable probability to deviate from the plan, and this assumes the existence of a plan. Strategies, plans and programs of the farm (firm) constitute elements which allow the prefiguration of reality and then the confrontation of the actual achievements with the expected results. To accomplish the objectives it is needed the undergoing of some groups of activity. An activity, noted (a), can be considered risk element if there are simultaneously met the following two conditions: 0 < P(a) < 1 (1); L(a) = 0 (2), where: P(a) = probability that an event (a) reproduces, E(a) = the effect of the event (a) on the objectives, L(a) = monetary evaluation of E(a).

Risk management is a cyclic process, with several distinct phases: risk identification, risk analysis and reaction to risk.

In the phase of risk identification the potential dangers, their effects and probabilities of occurrence are assessed to decide which of the risks needs to be prevented. Practically, in this phase, all the elements satisfying the conditions (1) and (2) are identified.

At the same time, false risks are eliminated; those risk elements with low probabilities of occurrence or with insignificant effect. This means that those elements can be neglected for which P(a) or L(a) tend to zero.

The risk analysis phase takes under consideration the risks identified in the first phase and performs a thorough quantification of these. To analyze the risk, a diverse mathematical program is used, going from probabilistic analysis to Monte Carlo analysis. The mathematical model selection must be adapted to the necessities of the analysis and take under consideration the accuracy of the available data.

The easiest method to quantify risks is that of the expected value (VA), which is calculated as a product between the probabilities of occurrence of some events and their effects: VA(a) = P(a) x E(a) (3), where: VA(a) = expected value of the event (a); P(a) = probability of occurrence of the event (a); E(a) = occurrence phenomenon of effect (a).

For instance, in the case of a farm which needs to bring animals from one area in which an enzootic disease evolved, this fact constitutes a major impact in calculating the costs and, implicitly, in the activity of offer-bidding. Thus, if during the time of documentation preparation for the participation to an auction to acquire animals from such an area, the farmer can insure against such a risk calculating the expected value to produce this phenomenon and can include it in the calculation for elaborating the offer bill. Practically, if the supplementary cost resulted in case of reoccurrence of the morbid entity for an effective of 100,000
million lei, and the probability for the disease to burst was estimated to 30%, the expected value of this risk will be: \[ VA(a) = 0.30 \times 100,000 = 30,000 \text{ million lei}. \]

That is, the farmer will be able to subtract from the offer value the amount of 30,000 million lei to insure this risk. Taking under consideration that the estimation of probabilities is a process with a high level of subjectivity, the results obtained through the expected method are usually used as input data for subsequent analyses.

Simulations constitute an advanced method to quantify risks. Simulation uses a model of a system to analyze the performances or the behavior of a system. For the sanitary-veterinary activities, the most frequently used simulation is the Monte Carlo. This technique simulates the achieving of objectives in a high number of times providing a statistical distribution of the results.

Decision trees are instruments describing the key interactions between decisions and random events, as they are perceived by governors. Tree's branches represent decisions (shown as squares), or random or uncertain results (represented as circles). Finally, the **expected value (VA)** of an effect as the product between the effect and probability of occurrence of the effect, and/or the expected value of a decision = the sum of the expected values of all the effects resulted from that decision, can be calculated.

**References**