

THE LIVESTOCK-INDUSTRY BLOCK AND ANIMAL-HEALTH PLANNING

Anibal C. Zottele

Pan American Foot-and-Mouth Disease Center (PAHO/WHO)
Caixa Postal 589, 20001-970 Rio de Janeiro, RJ, Brazil

Animal-health programs are conceived taking into account the technical, financial and institutional principles that are essential to their implementation. However, other aspects indispensable to sustaining their viability over the medium and long terms have usually not been weighed. A priority is the possibility of identifying all the sectors that are affected and that influence epidemiological intervention, as well as the nature of the impacts derived from that intervention. To analyze the viability of such programs, the livestock-industry block—built upon the input-product matrix—encompasses a substantial part of those relationships, and is one of the useful instruments for identifying and understanding present-day and future scenarios. This document describes some of the model's antecedents to be utilized, and incorporates general information about the historical development that explains the formation of the block in Argentina and in the River Plate basin. The input-product relationships of the branches closely linked through buy-sell relations are established, and then their importance at the level of economic activity within the complex, and some of their characteristics applicable to programming and intervention processes, are discussed.

After defining the biological and environmental interactions among the livestock-production systems, epidemiological intervention should consider their economic, financial, political, social and technological interaction with the whole array of activities related to the livestock industry and to other sectors of the society (9).

The activities of animal-health planning have taken into account three exclusive factors: the technical aspects, the funding, and the producers' participation. The great influence of each of these factors on carrying out a plan is fundamental. But if the processes of intervention and their results are considered, there emerge other economically, socially and politically conditioning factors that are

decisively important in explaining the only slightly favorable results in comparison to the expectations generated by the planning processes. Therefore, the criteria for defining the financing of a project, or for relying on the support of the sectors involved in the animal-health plans, go far beyond the sole requisite of the project's technical soundness or the financial benefits it promises.

An understanding of the multiple determinants that act in favor or against a technically acceptable plan is the basis for determining its viability. In order to approach this understanding, the point of departure are the macroeconomic, political and social conditions in which the plan is engendered. The immediate space in which the plan will receive and propagate its most significant influences ought to be thoroughly identified.

The first difficulty that arises in defining that space is to establish what actually is relevant in terms of the plan's influence, it being recognized

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that all economic projects of a certain relevance have some influence on all the activity of a country, and that the impacts on the immediate area of action are obvious.

In the case of animal-health programs, the space most closely linked in a first instance of determination is that which includes the activities related to the livestock-raising sector through inputs or products markets. An important part of those relationships is expressed from the selective regrouping of the input-product matrix that is an instrument of social accounting that records the buy-sell operations among the sectors (branches, classes) within a country.

EVOLUTION OF THE LIVESTOCK-RAISING ACTIVITY: THE PLATE RIVER BASIN CASE

The livestock-raising industry in the River Plate basin goes back to the early days of the settling of that region. The historical information in this paper generally alludes to the area under the influence of the ports of Montevideo and Buenos Aires, although many of the features of its development are common to the region that encompasses the southern states of Brazil, Paraguay, other zones of Uruguay, the Argentine Mesopotamia and the Pampa's plains.

Prior to the arrival of the Spanish conquistadores, the indigenous peoples who inhabited the pampas raised neither crops nor livestock. The first horses and mules entered the area in 1536, with the Don Pedro de Mendoza expedition. Sheep were brought into the Asunción area in 1550, their low quality is attributed to the Spanish monopoly on fine wools. On the other hand, there is doubt about when the first pigs were brought in, although they are mentioned in documents of the time in Mendoza. Lastly, cattle were introduced in the Salta area about 1550, and in Asunción in 1555. Livestock at that time served two main purposes: cattle, sheep and pigs were utilized to provide meat for the local population, while horses and mules were fundamental in the conquering of the indian peoples (3,8).

As long as the livestock did not become too numerous, it was allowed in the cities. But when the numbers grew, the Buenos Aires city government in 1610 prohibited the raising of livestock within the city limits. Consequently there was a rapid development of wild livestock, scrub cattle called "ganado cimarrón." Cattle especially proliferated, and its importance grew such that it displaced other more intensive activities like agriculture and manual crafts. Then roundups on horseback came into being, as Argentine cowboys rode off into the hinterland to hunt and round up the wild livestock.

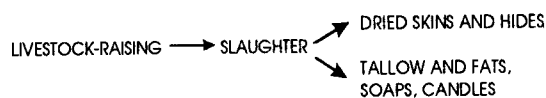
The authorities regulated that activity, and acknowledged the wild "cimarrón" animals as the property of the landowners, to whom the right to round them up was exclusively granted. The livestock products that were utilized were tallow and hides: of special importance was the incipient exporting of sun-dried hides and skins. The meat was left to the wild animals. Nevertheless, horses and mules were still the fundamental element in the sector's activity, being used for hunting and rounding up range animals.

The first taxes and duties levied on leather footwear, which began to be produced locally, date from 1610. At that time the so-called "colt boots" in the interior and the made-to-order shoes in Buenos Aires were prominent. But the emerging footwear industry could not yet be considered as a specific activity of the livestock-industry block because most footwear was still made of canvas (lienzo) or were sandal-like shoes (ojotas), often with a sisal or fabric frame (alpargatas).

In the middle of the 17th century the wild scrub livestock became scarce in the area surrounding Buenos Aires and other important cities along the Plate River. As their numbers dwindled, less and less roundup authorizations were issued, and the hunting season was closed from time to time. So scarce was the wild livestock in 1720, in Buenos Aires, that it became necessary to slaughter dairy cattle and bring in animals from Uruguay. The exporting of hides and skins grew simultaneously, owing to the Treaty of Utrecht in 1713, which allowed English ships to dock at Buenos Aires, contrabanding manufactured British goods for hides, skins and other local products. Thus the

decline of open-range roundups was accompanied by the emergence of a need for cattle to meet the foreign demand for skins and hides. Thus was born the colonial ranch, or estancia, where land and cattle constituted the only legal source of cattle production. This in turn led to the consolidation of the livestock-raising class (3).

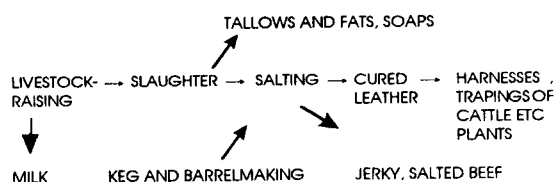
The activity on those properties was very simple, as they engaged only in castrating and branding the animals. However, that led to an improved use of the meat, the extraction of tallow and fats by boiling, and upgraded methods of drying hides. The livestock-based productive chain in 1750 could be envisaged as follows:



However, contemporary technology was unable to meet the demand for skins, and new improved methods became a necessity. The salting plants came into existence, and the importation of barrels and salt was allowed. But it was only after 1810, following the development of the free-exchange concept, that the barrel-making and salting industries expanded. A further stimulus to growth was the sale of jerky and salted beef for consumption by the slaves in Cuba and Brazil. The peak of that industry lasted until 1935, and such plants were the first nonpastoral businesses that concentrated a large mass of workers. The emergence of the salting plants opened a breach between the prime producer and the center of consumption, as the rancher (estanciero) sold the livestock to the salting plant, whose operator did the flaying and extracted the tallow. Moreover, if the ranch was not conveniently located, another stage emerged: the "invernador" who bought the stock from the producer, fattened it and sold it to the salter.

Concomitantly with the appearance of the salting plant, the Jesuits in 1778 started the real tanning industry. The incentive was the demand for harnesses, belts, straps, etc., for the armies of independence, as well as the new techniques brought to Argentina and the area by the immigrants in the first half of the 19th century.

Thus the structure of the livestock-based productive chain in 1850 included:



Despite the development of the industries related to the livestockraising activity— especially cattle-raising—, after the fall of the dictator Rosas sheep-raising grew spectacularly. Cattle-raising was displaced to a secondary position, as wool became the main export item from 1870 to 1880. That phenomenon responded to Great Britain's need for raw material for its textile industry, that had suffered from the loss of its previous supplier, the southern United States.

THE DEVELOPMENT OF THE COLD-STORAGE ACTIVITY

But the invention of cold storage and packing techniques saved the beef cattle sector from an economic eclipse, and set into motion a new type of trade relationship between Great Britain and the River Plate basin countries.

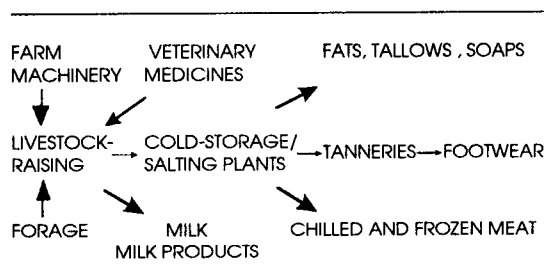
A ship named "Le Frigorifique" moored in Buenos Aires in 1876; it was outfitted with Theiller's invention for preserving fresh meat at 0°C. The attempt, however, fell short of expectations, but the method pioneered by Cane-Julien for freezing meat at temperatures to -30°C opened the door to the world. In 1882 permission was requested to

build the first cold-storage plant using that system. The industry developed quickly. However, beef-cattle export had one more hurdle to clear: its generally low quality. So breeding stock was brought in and interest increased in purebred stock. Likewise, the pasturelands were fenced off for fattening and finishing the cattle, watering places were provided and alfalfa was grown as the primary feed. Endemic disease also increased in Europe (3).

The year was 1900. Two important phenomena took place: the international interest in sheep declined and the sale of beef to coldstorage packing houses increased when an outbreak of foot-and-mouth disease brought about the suspension of exports of live cattle to the United Kingdom. The first veterinary medicines appeared and the meatexporting market along the River Plate passed over to English and North American capitalists who were the owners of the cold-storage and packing facilities. On the other hand, the need to upgrade pastures arose in the entrepreneurial arena. Oats and rye were introduced as the first alternative forage to substitute alfalfa, and were soon followed by grain sorghum and feed barley. This crop development introduced the livestock-raising block to the first farm machinery, especially iron plows and mechanical reapers.

A technological revolution of great importance evolved, and had a direct effect on the footwear industry. Ready-made footwear, a novelty in the region in 1899, led to assembly line manufacture that gradually brought about the almost total curtailment of imported footwear by 1930.

At the outset of the century, the activities closely related to the livestock industry in the livestock-raising regions of the River Plate basin were:



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The standstill of the livestock-raising industry in the USA and the use of chilled transportation methods brought North American capital intent on supplying the British market. Thus, in Argentina, six companies controlled 90% of the meat exports: three were North American, two were English, and one was Argentine.

That phenomenon in cold-storage ownership further concentrated the production of beef cattle and brought about the integral use of the by-products, yielding greater profitability for the entire operation. The first coldcuts, mixed meats and sausages produced locally date from that era.

The cold-storage plants were organized as a pool that divided up the market, assigned the warehouses and, alleging poor quality, bought from the producer at a lower-than-market price.

That situation extended up to the crisis of the 1930's, when some local producers found themselves benefited in that they were able to dictate prices. On the other hand, systems for classifying cattle and grading meats were introduced into Argentina, Brazil and Uruguay, and stricter controls at the packing plants were implemented in order to ensure nondiscrimination among suppliers (7).

THE INPUT-PRODUCT MATRIX AND THE LIVESTOCK-INDUSTRY BLOCK: ANTECEDENTS AND METHODOLOGICAL BASES

The preceding section described the productive activities related to the livestock industry up to the 1930's, using as the basis the direct buying and selling transacted between that sector and others. However, that analysis is not conclusive with respect to delimiting the livestock complex insofar as there did not exist suitable statistical information for building a table of economic relations that would incorporate all the ties between and among the diverse sectors. So it was not possible to know which branches belonged to each economic complex, except for those that had a very obvious or direct link.

Thanks to the honing of the instruments composing descriptive economics and to the

progress in gathering information, it is now possible to enhance our analysis.

The input-product model, which is a guide for gathering and providing information, falls into this perspective. It is a tool utilized to present the systematic recording of information on the economic activities conducted in a country in a given period (figure 1).

Nevertheless, in order to take on its present-day forms—generically known as the Leontief input-product model and its derivations—, various transformations occurred in both the technical-material and social conditions of production as well as in the dominant economic conceptions.

The first systematic effort to describe the workings of an economic system from a global or "macroeconomic" perspective was undertaken by the physiocratic school. That current of thought had its origin in France and, with François Quesnay, reached its moment of greatest splendor in the middle of the 18th century.

The physiocratic method had the merit of being the first to reduce the multiple individual acts of economic transactions to large-scale acts among social classes. However, the most complete development of a tool for recording the economic transactions was possible only when certain successes appeared as undeniable stimuli. In this sense, the implementation of planning systems and of matricial models in economic activity have a parallel evolution (4).

The world wars, the rise of centrally planned economies, the 1929 crisis, the Depression, and the problems surrounding the underdeveloped countries, all conditioned the appearance and the application of normative planning as well as the development of a social or national accounting in which the input-product matrix becomes a basic element.

In general terms, the Leontief input-product model may be conceived as a model of an economy's general equilibrium, that records the interindustrial transactions (conceived in a broad sense) based on an accountable identity in which a good's physical production is distributed as an intermediary and final good. Thus the production of each good or service supposes human work oriented to satisfying needs and, in the specific cases of the market

economies, that the product of that work can be realized as a value of exchange.

Besides the human work, that production combines several items in varying proportions, such as instruments of work (machines, tools, facilities) and inputs (raw materials or semifinished materials, energy, diverse services, etc.). These proportions reflect the composition of the capital required to generate a good.

A part of the combined elements represents a flow. The flows are the inputs of the production that have the particularity of being fully consumed in each productive cycle, thereby transferring their previous value to each new product generated. Stock is another part of the resources utilized. It comprises the machines, equipment and facilities that transfer only an ascribed part of their value to the new product, i.e., they are subject to an annual depreciation and therefore their usage in the productive process can not be accounted for in the same way as the inputs.

The input-product matrix is a registry of the inter-industrial flows encountered in an economy, considering exclusively that part of the activity conducted in the markets (excludes the self-consumption) during a given period, and wherein the use of stock (machinery, tools and facilities) is measured by the companies' depreciation tables.

The economic activities are divided by industry (this category is used herein to encompass all economic activities: agriculture, industry in the real sense, business, financial services and other services). This division corresponds to internationally accepted schemes by means of a system called the Uniform Industrial Classification of all the Economic Activities. Each industrial activity is shown registered as a branch or class, and according to the level of breakdown, the matrix will correspondingly include more or less "industries".

A known example is shown in figure 1, where the basic components of the matrix appear:

(a) One part reflects the purchases transacted among the sectors of the economy (expressed within the matrix by the letter "A"). These sectors are three, given the didactic purpose of the example. They could be further broken down within Agriculture, Industry or Services into various

Distribution of production	Inputs composition				Final demand				
	Agriculture	Industry	Services	Total of intermediary sales	Total	EXPORTS	Consumption goods and services	Capital goods and services	Gross value production (G.V.P.)
Agriculture	5	30	-	35	65	15	50	-	100
Industry	5	30	5	40	95	10	40	45	150
Services	10	10	5	25	115	20	95	-	140
Inputs									
Imports	5	10	0	15					
Total inputs	25	80	10	115					
Salaries	10	40	75						
Interests	5	5	10						
Income	15	5	5						
Profits	15	20	40		275				
Aggregate value	75	70	130						390
Gross value production		100	150	140					

Source: A.B. Castro and C.F. Lessa, 1982 (ref. 1, p. 32).

Figure 1. Intersectoral relationships

branches or classes. For example: cattle, sheep, pigs poultry, wheat, corn, oats, oleaginous plants, milk products, natural fibers, quarries, cement, automobiles, etc. In this part, the columns show what each sector buys from others and from itself. In the first column of the Agriculture sector we see that this sector buys from Agriculture (from itself) for five monetary units, from Industry 5, from Services 10, and imports inputs at 5. The rows show what each sector sells to the rest: in the second row, for example, we see that the sector Industry sells to Agriculture 5, 30 to Industry, and 5 to Services.

(b) In the part of the Figure of Intersectoral Relations, expressed by the letter "B", everything that was generated as production during the year is shown, including what was destined for a final use, whether individual consumption or productive consumption. For this reason the Consumption Goods and Services are differentiated from the

Capital Goods and Services. In the example utilized, to facilitate the explanation, a simple open-economy model has been presumed. Therefore, how the State records its operations is not taken into account. When the complete behavior is reviewed, obviously the foreign transactions should also be expressed. Likewise, consumption by the government is not shown. The complete information should contain, moreover, the variation of the companies' stock for the initial situation to the close of the period because in that case it is considered as a variation of investment.

(c) Finally, the part included in "C" shows how the Aggregate Value is divided up in the period, according to the distributive categories assigned to the remuneration of each factor utilized. For example, in the third column the part included under the letter "C" shows that the new value or Aggregate Value generated in the Services sector during the period on analysis was

distributed as 75 monetary units for Salaries, 10 units for Interests, 5 for Income and 40 for Profits.

As indicated above, economic activity according to these schemes is traditionally divided either into sectors as in the example here shown, or into branches or classes following the internationally accepted classifications.

Although useful for an analysis of the companies in their direct fields of activity, these classifications furnish an image disassociated from the set or array of relations corresponding to the companies involved. This is so because there is a series of relationships difficult to perceive when the companies are analyzed solely in the limited environment of the market of products and/or in relation to their direct inputs. For that reason some criteria are briefly discussed herein, criteria that have the capacity of including both the direct and indirect relationships, and which therefore are capable of enabling the observer to discern a block of economic interdependency differentiated from others in a country's overall economic picture.

Any economic activity may be described from this broader perspective, utilizing the Leontief input-product method as the basis. Therefore, this permits a reformulation of the form of presenting and utilizing the matrix. This approach consists of analyzing the concatenation of the relations backwards, if it is a question of the production of a final good, or forwards or in both directions, if an input is involved. In this way a chain of immediate and mediate links is defined, which move toward the generation of an input or product. More specifically, for these purposes a *chain* is defined as the structure of relationships between the different *links* in the making of a good. In turn, the links are understood as the different moments identified by the intermediary or final activities corresponding to the making of the given product.

The procedure within an input-product matrix consists of finding –from the various branches that comprise the matrix– in the chain or chains linked together, groups of companies linked to specific productions with *relative autonomy* in relation to the rest of the chains. That space of economic interrelationship pursued is defined as *sectoral complex or block-of interdependency*. In

synthesis, when the linkings between activities are stronger among themselves than with regard to the rest of the economy, this will configure a chain or chains whose extension(s) and ramification(s) will depend on the type of good from which the construction was generated. These blocks are susceptible to being isolated with the object of studying the companies that are inserted therein and, taking into account the presence of a space of accumulation through which economic, technological and occupational stimuli are transmitted (2,4).

In this fashion one may delineate a space of technical-material relationships, as well as social and economic ones, because the matrix is constructed upon the base of prices of inputs and products. Within that space the companies plan a part of their strategies, whether in consonance or in conflict with others, vis-à-vis the state or union policies, or other policies that affect their space or activity.

The existence of these analytical spaces makes it obligatory to design programs whose viability contemplates the spectrum of impacts that their implementation will generate, not only considering the sectors that will be affected in first instance, but also weighing other factors that can be equally decisive in startup and continuity.

CONFIGURATION OF THE LIVESTOCK-INDUSTRY BLOCK IN ARGENTINA

The 1930's also witnessed the inclusion of the poultry-raising activity. Although at that time the activity was very rudimentary, that was the era when the Argentine farmers began to produce balanced feeds for their poultry production. The first small-scale feed manufacturers emerged in 1940, and the first plants were set up in 1948. In 1950 the Ministry of Agriculture regulated the poultry industry and, the following year, opened the market for manufacturers of balanced feeds. Owing to the fact that corn is the main input for this industry, this grain is also incorporated into the block; with it go the branch of feeds in which the main products are the cereal-based foods, especially corn. Finally, the inclusion of farm products

(mainly chickens and eggs) determines the incorporation of soups and food concentrates by the block.

Since the fifties and up through the mid seventies, several relatively important phenomena affected several of the block's industries. First, meat exports slipped to only 20% of the total sales of the packing plants. It should be remembered that there had been previous periods when exports equalled 50% of the total of animals slaughtered. Secondly, the meatpacking industry underwent a technological transformation while, as in the case of superfrozen meats, the preparation of meat cuts no longer required huge plants, as were required for processing half carcasses. New plants then appeared, and the traditional ones became obsolete. A new industry thus arose: the market extended toward Europe and toward the Mediterranean basin, moving away from Great Britain.

Thirdly, foot-and-mouth disease vaccination became mandatory in the mid sixties, and the fight began against mange and ticks. This decision led to important developments in the veterinary medicine industry. Fourthly, between 1960 and 1965 the production of roaster chickens doubled, due to a greater use of balanced feeds and to the use of veterinary medicines. Lastly, in the early 70's, exports of leather footwear grew tremendously (at an average annual rate of 250%), thanks to special incentives and to foreign demand.

The livestock-industry block in Argentina presently comprises 30 branches, 7 primary (raw materials), 21 manufacturing, and 2 services; all are grouped under the branch "Slaughter of livestock, meat preparation and packing." This includes slaughter of livestock (the meatpacking plants) and poultry production, and the branch of "Production of milk and milk products." This paper comments only on the development of the aspects linked to the first branch, even though the extraordinary importance of the dairy activity in the country is acknowledged. It is one of the most dynamic sectors of Argentina's agrobusinesses, is highly competitive and in recent years has kept up an accelerated process of adaptation to the demands of the national and international markets (figure 2).

The branch "Slaughter of livestock, meat preparation and packing" originates in cattle, sheep, pigs, horses and mules. This branch requires two main inputs: the feed cereals, notably oats, rye, alfalfa and fattening forages, and grain sorghum, widely used in recent times; and veterinary medicines, especially foot-and-mouth disease vaccines.

Given the importance of the livestock industry in Argentina, the veterinary products industry evolved quickly since the past century, particularly with respect to the needs of cattle and sheep producers. Regarding the poultry industry, major development took place only in the past 30 years. In order of importance, other major veterinary products are the internal and external-use parasite remedies, antibiotics and the coccidiostatics as additives in balanced feeds.

The state policies fulfilled an important role not only in terms of the level of overall economic activity, but also in the way of specific measures such as the already mentioned mandatory foot-and-mouth disease vaccinations. Sales of those vaccines in 1980 amounted to 40% of the industry's total sales.

The main destination of livestock "on the hoof" are the slaughter and packing houses for domestic consumption, insofar as the exporting of live animals is concerned, although important in the early years of this century, it currently accounts for only about 10% of the output. The meat is taken from the packing plants for both domestic markets and exportation, as well as a large quantity of by-products such as coldcuts, sausages, soaps, fats and skins. The latter item, after being salted, goes to the tanneries and undergoes preparation mostly for export (65% of the value of production in 1973).

The main consumer of the hides and skins absorbed by the domestic market are the tanneries. In turn they earmark the product for the footwear industry, followed by women's purses, leatherwear, etc. Skins are included in this category, in both the initial phase (dried, dyed, etc.) and the final phase (fur clothing).

Regarding farm products, especially chickens, their main input is balanced feed containing mainly corn and sorghum and, to a lesser degree, soy and sunflower pellets. In the early '80's poul-

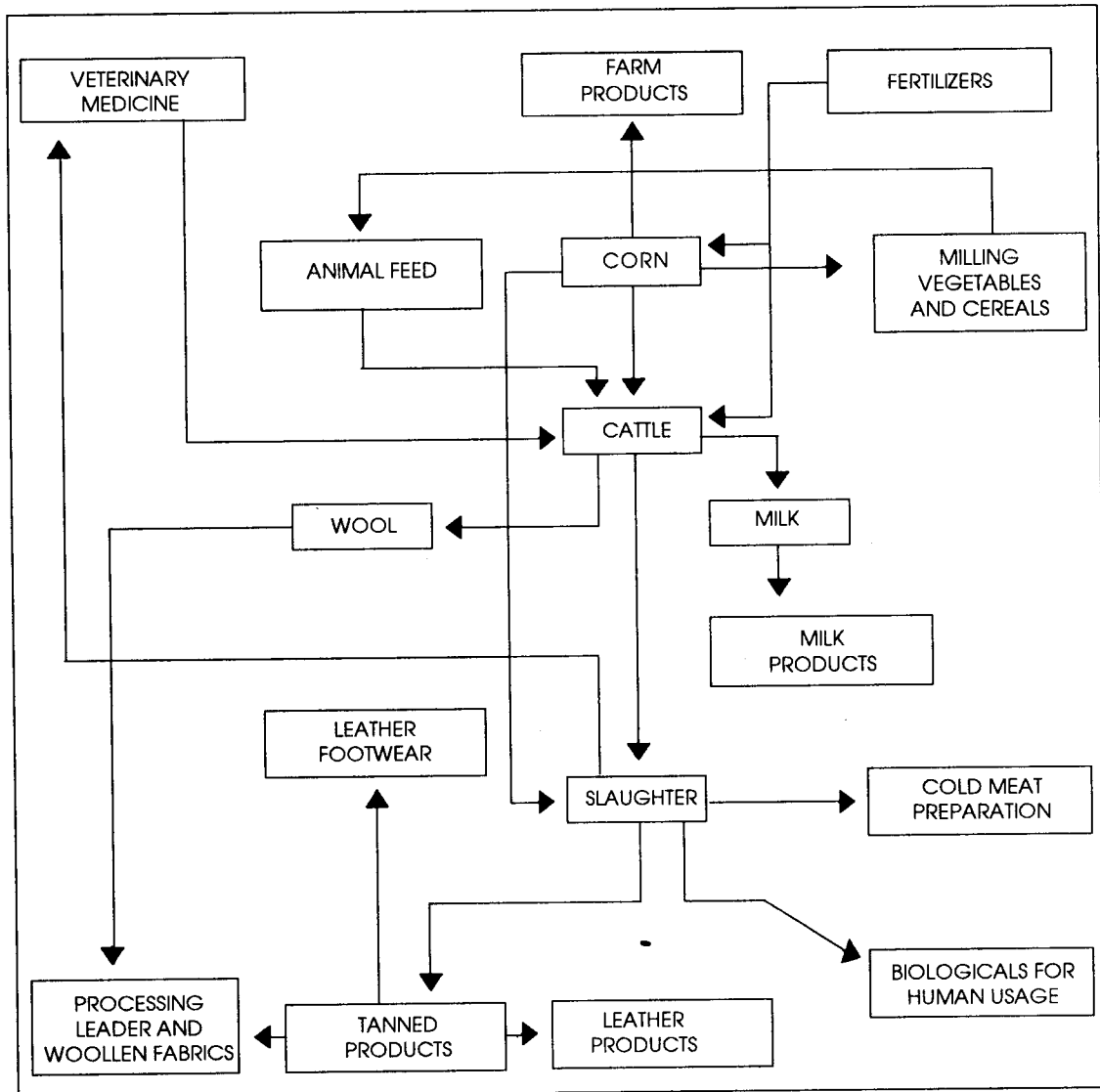


Figure 2. Livestock-industry block: some outstanding branches

try-raising accounted for slightly more than 6% of the gross agricultural product, and 13% of the livestock-related product, but the ups and downs of the activity have had significant repercussions especially on the small and middle-size producers. Production is split into various stages: the raising of BB chicks is in the hands of the "cabañeros" and "planteleros", and a small number of multinational companies, or companies linked to them, are predominant. Even today, when unstable prices and problems of competition have caused periodical crises and significant profit declines, the poultry industry is still of major importance for some regional economies, in particular for the Province of Entre Ríos.

The balanced-feed industry is highly concentrated. The class *farm products* covers mainly the poultry establishments responsible for slaughtering chickens and selling them for domestic consumption. This grouping includes three branches. The first is soups and concentrates, due to the fact that the *farm products* are their main input. Secondly, grain milling except for wheat, and thirdly, the various feeds for the importance of the products prepared from corn. The main goal of these industries is final consumption. Regarding the grains considered in the livestock-industry block, it should be remembered that both corn and grain sorghum have not undergone significant fluctuations in recent years. Feed barley and rye, however, have tended to lose their importance; in the latter case exports have been lowered to minimal levels.

The production of the livestock-raising branch in the last few decades has been largely destined to the domestic market. However, international changes noticeably affect the formation of prices paid to raisers and the livestock cycle. In this sense, output rose in the years when exports rose. Nevertheless, more significant was the impact on domestic prices when exports declined and international prices fell. Considerable improvement in the epidemiological situation with respect to foot-and-mouth disease is generating reasonable expectations regarding the dynamic role of the foreign sector. In other activities of the branch, a systematic decline in sheep output and a standstill, with slight drops in production, is noted in the pig

industry, whose evolution is subject to negotiations among the MERCOSUR member countries.

APPLICATIONS OF THE LIVESTOCK-INDUSTRY BLOCK TO ANIMAL-HEALTH PLANNING

As has been shown, from successive divisions of an input-product matrix sufficiently subdivided, it is feasible to establish groups of activities directly or indirectly linked to one another, and in this way arrive at sectoral matrices composed of highly interdependent activities.

Each of these groups can be analyzed within itself and in relation to the rest, so that it is possible to relate the sectoral level to the overall level by means of a matrix of relationships of sectoral matrices. The space of analysis thus defined consequently enables one to present the problems of the sectoral policies around the groups of activities strongly influenced by those policies.

The activity of each company and the market in which it participates, as well as size, degree of oligopoly or oligopsony, forms of funding, fiscal situation, etc., constitute the material base for forecasting its strategy in terms of the generation of certain flows of facts or events or of diverse reactions vis-à-vis those facts or events.

The point of departure is that the situations related to the social actors composing the reality on which operate, as a part of it, those who act in the animal-health field, have a limited degree of forecastability; this is so because of the number of them that can be involved in an action and the type of conduct that they can adopt vis-à-vis the plan, according to their strategic calculation (5, 6).

The quasistructured nature of the phenomenon at least lessens, in great measure, the possibility of a mathematical formalization that may be satisfactory. In recognition of this situation, the space that is utilized as basis for the configuration of the programs' viability is only one instance of material relationships that will permit an analysis of the multiplicity of sectors that in principle receive and transmit influences.

Nevertheless, the livestock-industry block delimits the branches of production that are closely linked to the livestock-raising activity, and identifies the initial economic impact on the sectors involved vis-à-vis the application or modification of a plan.

Once the framework of the activities involved around livestock production has been established, an important part of the basic social accumulations of the particular space of the livestock industry may be precisely located: the companies that operate in the sector. Each element defined so far as an activity related to another is in reality an area of accumulation of the companies. Those that possess a greater power of negotiation normally are in a specific way the property of the state, transnational, or belong to large national economic groups.

The livestock-industry block matrix definitely enables the researcher to qualify and quantify a relevant part of the specific interests of each company or group of companies of the animal industry and their interrelationships of dependency of a technological-financial order and, in the final instance, of economic and political power.

The awareness of the role of these accumulations in the governability of the animal-health programs has given place to the application of the described model as part of the development of situational planning, and as an attempt to organize conceptually and methodologically a response to the rare success of the normative planning in this field.

Although the primary sector, made up of the producers of the various production systems including cattle as well as the other species, is the core of the activity, numerous links precede the breeding and/or fattening, the production of milk, poultry and wool, and many others are subsequent up to the final consumption. Packing plants, laboratories, consignees, tanneries, animal auctions, footwear producers, factories turning out coldcuts, sausages, soups, farm machinery, balanced feeds, etc., are linked together and interact forming a specific space of accumulation and comprising a material base to a specifically livestock-related process which is, therefore, differentiable from others.

Upon identifying some of the main activities within it, the livestock-industry block approaches the particular space from the base information on which one may precisely profile the principle social accumulations and the flows of events that derive from them. Epidemiological intervention should include that perspective because the entire array of social actors defined by means of the livestock-industry block affect the governability of the animal-health systems, permitting, limiting and even annulling the viability of programs and projects.

CONCLUSION

The viability of animal-health programs has normally been associated with their technical and financial possibilities, and with the responses they could offer to the primary producers. Nevertheless, as has been shown (9), these three factors are a necessary but not wholly sufficient condition to guarantee the implementation and permanence of a given program.

Through the reformulation of the input-product matrix, this study shows other components of that viability, especially the diverse economic spaces in which the actors and interests interact, thereby modifying, in several directions, the epidemiological objectives envisioned in the national programs. The case of the River Plate basin and especially of Argentina reflects in good measure that multitude of interactions in the construction and functioning of the programs.

The livestock-industry block enables students of the subject to identify an important part of the relationships between the primary activity and the diverse industries that provide the inputs or consume products of the primary activity. This characteristic gives it the capability to explain a good part of the material base that interacts vis-à-vis each animal-health program. This in turn is indispensable to establishing the strategies of epidemiological intervention and the corresponding profiling of present and possible future scenarios with respect to that intervention.

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Anuncio

Reuniones de la Comisión Sudamericana para la Lucha contra la Fiebre Aftosa (COSALFA)

Todos los años se realiza una Reunión de los países miembros de la COSALFA donde se discuten asuntos relacionados al combate a la fiebre aftosa.

Previamente se realiza un Seminario con un tema seleccionado en el Seminario del año anterior.

1994 - XXI Reunión de la COSALFA. 14 y 15 de abril de 1994, Lima, Perú

Seminario Internacional sobre los Sistemas de Atención de la Salud Animal ante los Cambios en el Papel del Estado y de la Comunidad. 11 al 13 de abril de 1994.

1995 - XXII Reunión de la COSALFA. 9 y 10 de marzo de 1995, Santa Cruz de la Sierra, Bolivia

Seminario Internacional sobre Sistemas de Información y Vigilancia Epidemiológica, bajo la Óptica de la Erradicación y los Nuevos Modelos de Atención Veterinaria. 6 al 8 de marzo de 1995.

Announcement

Meetings of the South American Commission for the Control of Foot-and-Mouth Disease (COSALFA)

Meetings to discuss matters related to the prevention and control of foot-and-mouth disease are held annually by the member countries of COSALFA. Prior to each meeting, a Seminar on a topic selected during the preceding Seminar is also held.

1994 - XXI Regular Meeting of COSALFA. 14-15 April 1994, Lima, Perú

International Seminar on the Animal-Health Care Systems and the Changes in the Role of the State and the Community. 11-13 April 1994.

1995 - XXII Regular Meeting of COSALFA. 9-10 March 1995, Santa Cruz de la Sierra, Bolivia

International Seminar on Epidemiological Surveillance and Information Systems, from the Viewpoint of Eradication and the New Models of Veterinary Care. 6-8 March 1995.