

## THE ECONOMIC IMPLICATIONS OF A CHANGE IN FMD POLICY : A CASE STUDY IN URUGUAY

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*La FA est la maladie qui provoque probablement les plus grandes conséquences sur le commerce international des bovins.*

*Un plan de lutte a été appliqué en Uruguay de 1961 à 1995, année où la maladie a été considérée comme éradiquée et où le pays a été déclaré indemne sans vaccination.*

*En dépit d'un contrôle efficace des foyers depuis 1990, les derniers foyers ont coûté environ 3 millions \$US.*

*Les bénéfices directs de l'éradication de la FA sont estimés en incluant les économies réalisées par l'arrêt des campagnes de vaccination et des autres mesures de contrôle moins les nouvelles mesures préventives, à plus de 5,8 millions \$US par an.*

*Le changement de statut sanitaire du pays a permis l'ouverture de nouveaux marchés, et pour les marchés existant déjà, de nouveaux produits ont été acceptés.*

*Les bénéfices du commerce sont difficiles à quantifier avec précision, mais une évaluation « pessimiste » concernant la part de viande détournée du marché intérieur au profit du marché extérieur indique qu'une augmentation annuelle d'environ 19,2 millions \$US aurait pu être obtenue (en prix coûtant 1996).*

*A long terme, avec l'accession aux marchés de la zone pacifique et ceux d'un quota de pays traditionnels, ces chiffres pourraient monter jusqu'à 92,6 millions \$US.*

*Les modifications du commerce à cette échelle ont d'importantes conséquences pour les producteurs, les consommateurs, et les industriels de la viande.*

*Les implications sont liées et dépendent des changements des prix du marché qui influencent la production et la productivité nationale.*

*Ce papier présente les facteurs entrant dans les calculs des gains économiques liés à la modification de stratégie de lutte et identifie les principaux effets indirects consécutifs au changement de statut sanitaire de l'Uruguay.*

In 1996 Uruguay was recognised as an FMD-free country without vaccination. This has had the immediate effect of reducing both government and private sector expenditure on vaccine, and vaccination campaign management and supervision. It has enhanced the immediate and longer term opportunities for trade. Uruguay has now been able to take up 20,000 tonnes country quota for the export of beef to the USA. This paper discusses the factors involved in the calculation of the economic implications of the policy change, and examines the case of Uruguay.

Within the country a policy of tri- and bi-annual vaccination had been in place since 1968. In the late 80's and early 90's a series of enabling factors, both endogenous and exogenous occurred or were encouraged which provided the impetus and facilitated the change from a policy of vaccination to one of disease freedom and eradication. These factors included :

- the formation of the "agreement of the Platte Basin" a regional group of countries with a common concern and objectives to control and eradicate FMD;
- the development of private sector and public sector working groups established to organise and participate in the control of FMD;
- the introduction of oil-based vaccine which reduced the resources required to intensify campaigns and improve coverage;
- the availability of BID funding for this within a national animal health programme;
- the development of a national indemnity fund to compensate producers in the event of an outbreak;
- the political will of the private sector to change to a policy of disease freedom and eradication;

The decision to change policy is a complex one and is influenced by economic and epidemiological, financial and political concerns at many levels. This paper outlines a cost-benefit framework within which the economic aspects of a change in FMD policy can be considered. Four categories are used to identify the economic effects of the change in policy. On the cost side these include :

- additional direct costs resulting from the policy change;
- benefits lost as a result of the change in policy;

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On the benefit side these categories include :

- additional new benefits resulting from the change in policy;
- savings made as a result of the policy change.

The costs of the exercise included both: an intensification of the vaccination campaign involving more personnel from the department and the private sector, an increase resources for media coverage, vehicle use, vaccination equipment and protective clothing, fuel, sero-prevalence tests, and a vaccine bank held outside of the country for emergency use.

The benefits foregone or lost as a result of the change of policy: included the proportion of resources lost due to the closure of one of the lines of business for vaccine producers. However it should be borne in mind that much of these resources would be channelled to alternative pharmaceutical products.

The direct benefits of the change in policy to one of eradication included: Increased foreign exchange revenue due to improvements in the trade position (increased volume and / or better export prices), and intangible benefits of earlier market access to the world FMD-free meat market. The estimation of trade benefits is complex as prices received vary greatly between markets and are affected by the type of cut, quality specifications, transport costs, market agreements (spot buying or forward contracts). In countries in which trade is limited by policies, other than disease policy (e.g. EU), trade related changes may not occur.

Improvements in productivity and output would not be attributed to this policy change as these effects would previously have resulted from the vaccine programmes.

The savings made as a result in the change in policy include: the cost of vaccine (including quality assurance), its administration and supervision. In Uruguay the cost of vaccine quality assurance and testing was borne by the State. The policy change resulted in savings in laboratory costs, laboratory animals and experimental cattle, and their maintenance costs, a major component of which was feed and forage.

An ex-ante analysis would also need to consider the probability of outbreaks occurring within the disease free area. There are two alternative methods which could be used to examine this uncertainty within the analysis. The first method would identify the expected risks of an outbreak , and the number of outbreaks and scale of outbreaks that could be expected to occur per year. The cost of their control and other losses associated with an outbreak would form part of the cost of changing policies.

The alternative method would be to identify the costs associated with an outbreak and then to carry out a "break-even" analysis. Having established the net benefit of the change (i.e. Additional benefits - additional costs) in a no outbreak situation, this would then be divided by the cost of an outbreak to identify approximately how many outbreaks could occur before the net benefit of the change in policy were reduced to zero or a minimal acceptable level.

The benefits included in table I are extremely conservative, allowing for only an additional 20,000 tonnes of trade (which was more than realised in this first year of disease freedom). The benefits of improved markets are cumulative, additional quota being requested and granted on the basis of past performance. In addition the effects from the evolving pacific rim markets of Japan and Korea are yet to work through the world markets. Demand for beef in Japan is forecast to rise by 62% and in Korea by 406% or 572,000 tonnes. Changes of this scale may result in increased beef exports direct to these countries if country quotas can be negotiated. Most of the increase in demand will be met by the USA and Oceania. Which could encourage further import demand from the USA. Other meat exporting country's are likely to become FMD free in the next years, altering the world supply and world prices for ruminant meat products.

Other impacts will be felt upon the sector, few models exist to allow effective predictions of the likely outcomes. For example, changes in throughput and the market value of throughput will be important to maintain the financial stability of the meat industry, improving efficiency (reducing excess capacity) and encouraging inward investment.

Impacts on sector productivity will depend on the extent to which changes in total demand affect domestic producer and consumer prices. These will interact to influence: the distribution of the benefits to these parties, the short and long term supply of beef animals (for domestic and export requirements) and the level of incentives which affect sector investment decisions and livestock productivity. The actual impact of the change in policy on the development of the sector and its impact on the national economy (i.e. balance of payments, exchange rates, tax and tariff revenue ) as well as the distribution of the benefits within the sector between the different producer groups, processors and consumers remain to be seen. These will be important indicators of the types of changes that may occur in other country's expecting to follow similar forms of sector development.

**Table I**  
**Savings & additional future costs incurred in FMD policy changes**

<b>BENEFITS &amp; SAVINGS</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit cost</b>	<b>Annual total</b>	<b>Annualised value****</b>
<u>Trade improvements</u>					
USA trade: frozen meat	12,000	tonnes	1,960	23,520,000	
USA trade: Chilled meat	8,000	tonnes	4,000	32,000,000	
less meat displaced from local retail market	20,000	tonnes	1,780	35,600,000	
<b>SUB TOTAL BENEFITS</b>				<b>19,920,000</b>	<b>*19,920,000</b>
<u>Vaccination campaigns</u>					
Vaccine cost	14,392,695	doses	0.56	8,059,909	8,059,909
Labour cost	1,395	SMD	8.43	11,760	11,760
Direct campaign control	2	campaigns	125,869	251,738	251,738
Indirect campaign control		total	1,080	1,080	1,080
Vaccination control		total		147,308	147,308
<u>Vaccine Assurance</u>					
Land rental **		total		3,715	3,715
Cattle ***	420	head	250	105,000	105,000
Lab. animals - feed****		total		57,735	57,735
Lab. staff re-assigned	11	assist.	3,600	39,600	39,600
Fuel	3125	Lt	0.40	1,250	1,250
Laboratory sale				1,000,000	101,852
<b>SUB TOTAL SAVINGS</b>					<b>8,780,947</b>
<b>ADDITIONAL COSTS INCURRED</b>					
<u>Emergency preparedness</u>					
Compensation fund		total		1,300,000	1,300,000
Vaccine bank				45,000	45,000
<u>Preventive measures</u>					
Barrier improvement		total		1,300,000	1,300,000
Prevention visits	35,040	visits		112,560	112,560
Inspection of foreigners				3,300	3,300
<b>SUB TOTAL COSTS</b>					<b>2,988,643</b>
<b>NET BENEFITS</b>					<b>25,712,304</b>

## Notes:

- \* This is a minimum gain, and assumes that the gains only result from improved trade with USA, and there is no change in productivity or the size of the national herd.
- \*\* Land rental savings are made from area where test cattle were kept.
- \*\*\* 20 animals were used to test each batch of vaccine. Approximately 21 batches would have been tested /year
- \*\*\*\* Lab. animals have been reduced by 11,400 rats and 5,800 guinea pigs with a cost of US\$ 1.33 and 7.35 per animal respectively. This cost reflects the cost of their maintenance.
- \*\*\*\*\* Annualised over 20 years at 8%.

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